

**CALIFORNIA DEPARTMENT OF WATER RESOURCES
OFFICE OF WATER USE EFFICIENCY**

**2003 URBAN WATER CONSERVATION PROGRAM
GRANT APPLICATION**

MAIN REPLACEMENT



PARADISE IRRIGATION DISTRICT

Submitted by:

Paradise Irrigation District
5325 Black Olive Drive
P.O. Box 2409
Paradise, CA 95967

530.877.4971
[Fax 530.876.0483]
www.paradiseirrigation.com

PART A — PROJECT DESCRIPTION, ORGANIZATIONAL, FINANCIAL AND LEGAL INFORMATION

A-1 Urban Water Conservation Grant Application Cover Sheet

1. Applicant (Organization or affiliation): Paradise Irrigation District
2. Project Title: Main Replacement Project
3. Person authorized to sign and submit proposal:

Name, Title	<u>Ray Auerbach, Manager</u>
Mailing address	<u>PO Box 2409</u>
	<u>Paradise, CA 95967-2409</u>
Telephone	<u>(530) 877-4971</u>
Fax	<u>(530) 876-0483</u>
E-mail	<u>rauerbach@paradiseirrigation.com</u>
4. Contact person (if different):

Name, Title	<u></u>
Mailing address	<u></u>
Telephone	<u></u>
Fax	<u></u>
E-mail	<u></u>
5. Funds requested (dollar amount): \$1,310,521.62
6. Applicant funds pledged (local cost share) (dollar amount): \$159,716.51
7. Total project costs (dollar amount): \$1,470,238.13
8. Estimated net water savings (acre-feet/year): 560

Estimated total amount of water to be saved (acre-feet):	<u>22,380</u>
Over _____ years	<u>40</u>
Benefit/cost ratio of project for applicant:	<u>1.65</u>
Estimated \$/acre-foot of water to be saved:	<u>65.69 \$/ac-ft</u>
9. Project life (month/year to month/year): 7/2003 – 6/2046
10. State Assembly District where the project is to be conducted: 3
11. State Senate District where the project is to be conducted: 1
12. Congressional District(s) where the project is to be conducted: 2
13. County where the project is to be conducted: Butte
14. Do the actions in this application involve physical changes in land use, or potential future changes in land use?

(a) Yes	<u></u>
(if yes, complete the land use check list at	
<u>http://www.calfed.water.ca.gov/adobe_pdf/Questionnaires_EC_Permits_LandUse.pdf</u>	
and submit it with the proposal	
(b) No	<u>No</u>

A-2 Application Signature Page

By signing below, the official declares the following:

The truthfulness of all representations in the application;

The individual signing the form is authorized to submit the application on behalf of the applicant;

The individual signing the form read and understood the conflict of interest and confidentiality section and waives any and all rights to privacy and confidentiality of the application on behalf of the applicant; and

The applicant will comply with all terms and conditions identified in this Application Package if selected for funding.


Signature

Ray Auerbach, Manager
Name and title

12/2/02
Date

A-3 Application Checklist

Complete this checklist to confirm all sections of this application package have been completed.

Part A: Project Description, Organizational, Financial and Legal Information

- ☒ A-1 Urban Water Conservation Grant Application Cover Sheet
- ☒ A-2 Application Signature Page
- ☒ A-3 Application Checklist
- ☒ A-4 Description of project
- ☒ A-5 Maps
- ☒ A-6 Statement of work, schedule
- ☒ A-7 Monitoring and evaluation
- ☒ A-8 Qualification of applicant and cooperators
- ☒ A-9 Innovation
- ☒ A-10 Agency authority
- ☒ A-11 Operation and maintenance (O&M)

Part B: Engineering and Hydrologic Feasibility (construction projects only)

- ☒ B-1 Certification statement
- ☒ B-2 Project reports and previous studies
- ☒ B-3 Preliminary project plans and specifications
- ☒ B-4 Construction inspection plan

Part C: Plan for Environmental Documentation and Permitting

- ☒ C-1 CEQA/NEPA
- ☒ C-2 Permits, easements, licenses, acquisitions, and certifications
- ☒ C-3 Local land use plans
- ☒ C-4 Applicable legal requirements

Part D: Need for Project and Community Involvement

- ☒ D-1 Need for project
- ☒ D-2 Outreach, community involvement, support, opposition

Part E: Water Use Efficiency Improvements and Other Benefits

- ☒ E-1 Water use efficiency improvements
- ☒ E-2 Other project benefits

Part F: Economic Justification, Benefits to Costs Analysis

- ☒ F-1 Net water savings
- ☒ F-2 Project budget and budget justification
- ☒ F-3 Economic efficiency

Appendix: Benefit/Cost Analysis Tables

- ☒ Tables (Long Form) 1; 2; 6 and 7

A-4 Description of Project

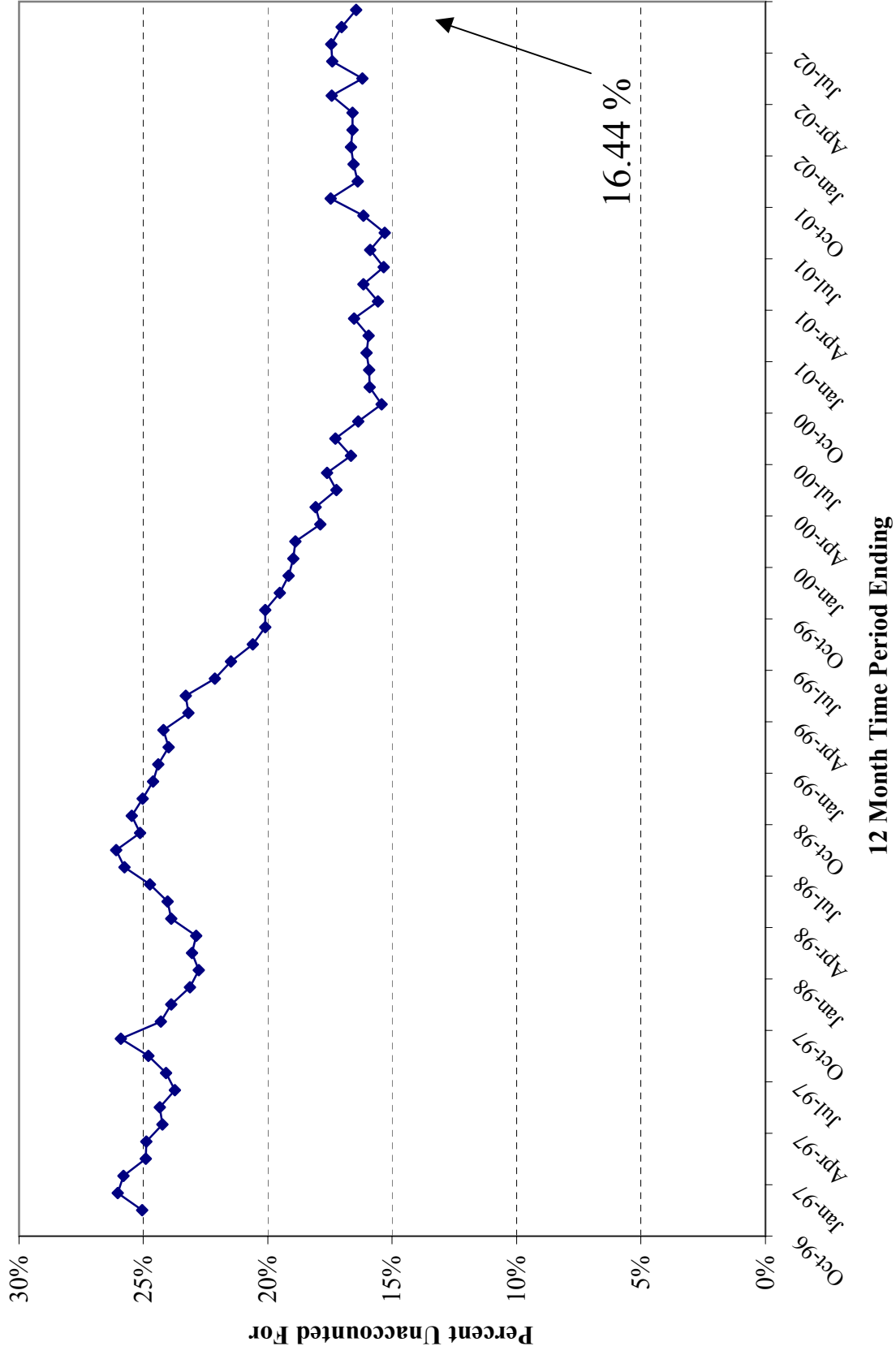
The Paradise Irrigation District receives almost all of its water supply from surface runoff from the Little Butte Creek watershed. The firm yield of this surface water source is 7,300 acre-feet per year, and an additional 200 acre-feet is available from one well. Current water demands are slightly greater than this firm supply, and additional water sources will be needed to supply an anticipated 20% growth in customer base. Water losses from leaking water mains have been the greatest contributor to the District's high percentage of water losses (32% in 1993). Current water losses have been reduced to approximately 17% due to a water main replacement program, but it appears that main replacement must be accelerated to bring water losses down to an acceptable level (See Figure 1). The reduction in lost water will help to defer the need to construct expensive new facilities, and will reduce the amount of additional water supply sources needed to serve new development.

The proposed Water Main Replacement Project is designed to replace approximately 19,525 feet of steel water mains constructed in the 1940's and 50's. The District maintains detailed leak records, and the proposed project will replace the mains with the worst leak record. It is anticipated that the thirteen main replacement projects will save a total of over 22,380 acre-feet of water over the 40-year assumed life of the project.

The total cost of the project is estimated to be \$1,470,000 including all labor, material, equipment, engineering, and overhead costs. The present value of project benefits is \$2,422,000, resulting in a benefit to cost ratio of 1.17 when considering water supply benefits only, and an overall benefit to cost ratio of 1.65. Thirteen separate water main replacements are proposed, and the District is proposing to complete this project over a three-year period using District forces for the construction work. The District is proposing to fund the cost of easement acquisition, engineering, environmental documentation and construction administration of the project, and is requesting grant funds for construction costs only. This proposal results in a request for approximately \$1,310,000 in grant funds and a \$160,000 contribution from the District.

In addition to the capital cost savings, there are additional cost savings such as cost of leak repair and the cost of producing water that is lost from the system. Another major benefit of this program is enhanced fire protection for the Town of Paradise. The mains that are proposed for replacement are generally undersized for current fire flow requirements. The new mains will provide adequate fire flows and the design fire flows and hydrant locations are coordinated with the Town of Paradise Fire Department. New fire hydrants are not included in the project costs since they do not contribute to the water savings goals. Paradise Fire Department will fund new fire hydrants installed on the water mains.

**Figure 1. Unaccounted for Water
12 Month Time Intervals**



A-5 Maps

A map of the District showing the locations of the proposed main replacement projects is included in Figure 2.

A-6 Statement of Work, Schedule

After notification of funding approval, the District will begin the initial tasks of the main replacement projects, environmental documentation and easement preparation and acquisition. A detailed schedule for each of the main replacement projects proposed for the three project phases is included as Figure 3.

The projected costs per task and quarterly expenditure projections are shown on Tables A-1 and A-2.

A-7 Monitoring and Evaluation

After completion of the main replacement projects, the District will continue to maintain leak records for each section of main that is replaced. It is not anticipated that there will be any significant leakage on the new mains for many years. . This assumption is based on the historic leak records for the C-900 PVC pipe used for main replacements for the past 12 years. This leakage will be compared to the assumed leakage and number of avoided leaks developed for the application to determine the success of the project. The District will also monitor its water losses to determine if they are reduced as expected.

The monitoring and evaluation program will consist of the following:

- Amount of leakage on new mains
- Calculation of amount of water saved
- Value of water saved including avoided costs of energy, treatment and capacity
- Cost of main replacement projects
- Comparison to project assumptions
- The data listed above will be used to determine if the project goals are being met.

The data from this project will be compiled and will be available on the District's web site, www.paradiseirrigation.com. The District has an active Public Outreach Program that includes presentations to service clubs and community organizations such as the Chamber of Commerce. The District is also active in the American Water Works Association. After completion of the project, the District intends to make presentations about the project to many of these groups.

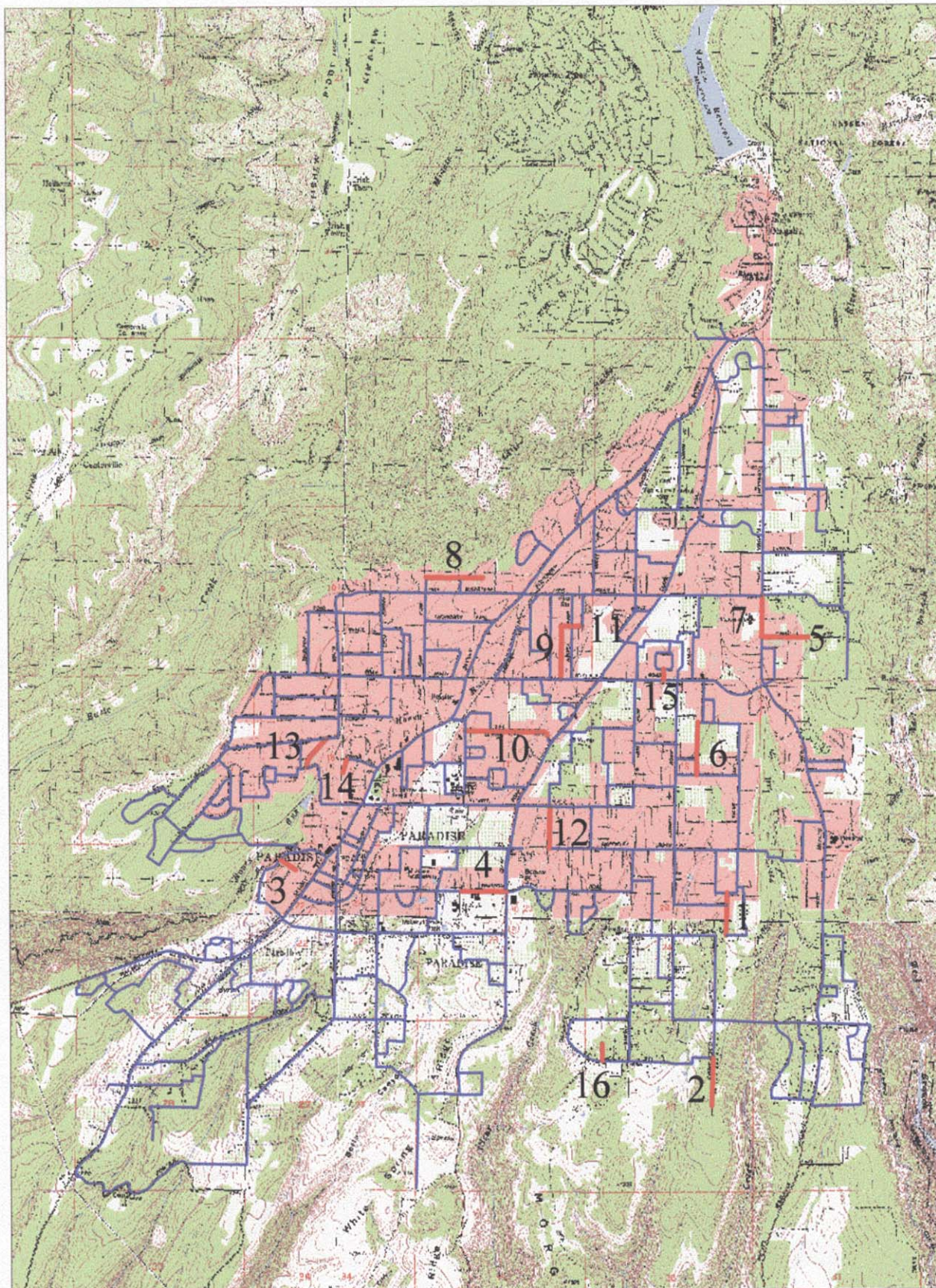


FIGURE 2.
PARADISE IRRIGATION DISTRICT
DISTRIBUTION SYSTEM

— Existing Mains
— Replacement Mains



0 3000 6000 9000
Scale. feet

PROJECT KEY

- | | |
|-----------------------|------------------------|
| 1. Butte View Terrace | 9. Azalea Lane |
| 2. Edgewood Lane | 10. Central Park Drive |
| 3. Friendly Way | 11. Cindy Lane |
| 4. Pearson Road | 12. Copeland Road |
| 5. Stark Lane | 13. Crestview Drive |
| 6. Peck Lane | 14. Hayes Lane |
| 7. Pentz Road | 15. Lancaster Drive |
| 8. Waggoner Road | 16. Squire Lane |

Figure 3. Main Replacement Project - Project Plan and Work Schedule

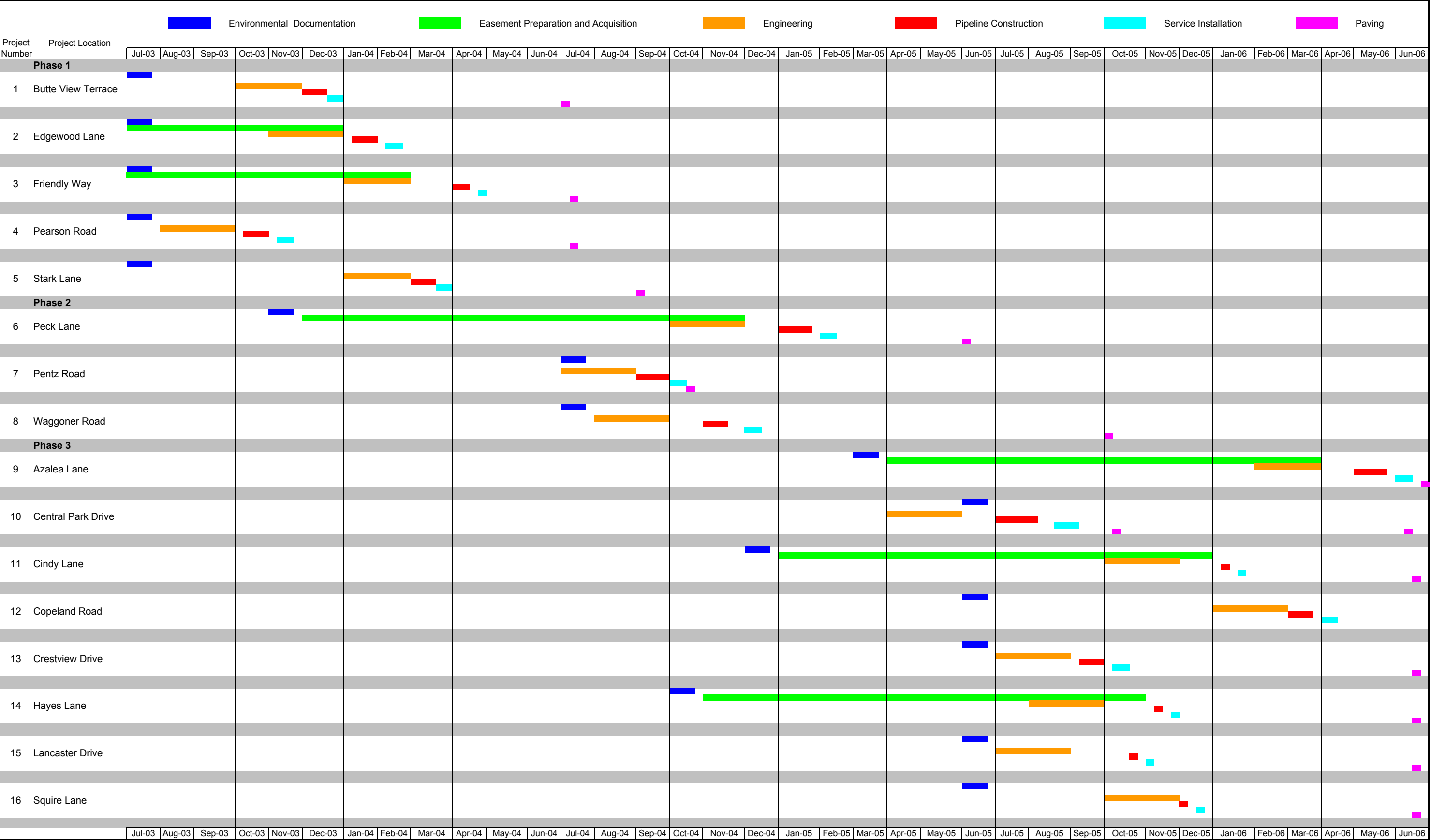


Table A1. Pipeline Replacement Project - Projected Costs by Task

	Phase 1	Phase 2	Phase 3	Total
CEQA Documentation Easement Preparation	\$1,000	\$600	\$1,600	\$3,200
Engineering	\$21,120	\$17,820	\$29,040	\$67,980
Construction	\$20,615	\$15,514	\$29,397	\$65,526
Administration	\$412,300	\$310,274	\$587,948	\$1,310,522
	\$7,246	\$5,605	\$10,159	\$23,010
Total (all tasks)	\$462,281	\$349,814	\$658,144	\$1,470,238

Table A2. Main Replacement Project - Quarterly Expenditure Projection

Quarter:						
Beginning	7/1/2003	10/1/2003	1/1/2004	4/1/2004	7/1/2004	10/1/2004
Ending	9/30/2003	12/31/2003	3/31/2004	6/30/2004	9/30/2004	12/31/2004
Phase 1	\$15,624	\$190,558	\$156,952	\$34,920	\$64,227	\$0
Phase 2	\$0	\$3,764	\$3,564	\$3,564	\$73,249	\$152,908
Phase 3	\$0	\$0	\$0	\$0	\$0	\$1,588
Totals	\$15,624	\$194,322	\$160,516	\$38,484	\$137,476	\$154,496
Quarter:						
Beginning	1/1/2005	4/1/2005	7/1/2005	10/1/2005	1/1/2006	4/1/2006
Ending	3/31/2005	6/30/2005	9/30/2005	12/31/2005	3/31/2006	6/30/2006
Phase 1	\$0	\$0	\$0	\$0	\$0	\$0
Phase 2	\$78,935	\$16,167	\$0	\$17,661	\$0	\$0
Phase 3	\$2,213	\$16,788	\$210,689	\$127,071	\$94,107	\$205,688
Totals	\$81,148	\$32,955	\$210,689	\$144,732	\$94,107	\$205,688

A-8 Qualifications of the Applicant and Cooperators

The following District Employees will manage the project:

Ray Auerbach, District Manager – Overall project management
 John Price, Field Superintendent – Construction management
 Neil Essila, Assistant Engineer – Engineering and technical support

Resumes for these employees are included in Appendix A.

A-9 Innovation

Locating existing utilities with vacuum excavator

Locating existing utilities is a time consuming part of the field work required to design an underground utility installation. The District plans to utilize a vacuum excavator to verify the location, size and depth of existing utilities. The vacuum excavator has the ability to expose an underground facility in a matter of minutes with an excavation as small as 8" by 8". This results in a time savings of about 90 percent, compared to the traditional excavation of a similarly sized hole by hand digging. This results in significant cost savings and less disruption of traffic.

Utilizing 1-sack concrete slurry for trench backfill

The district proposes to use 1-sack concrete slurry, known as a popcorn mix for backfilling trenches after the new water mains are installed. This backfill mix sets up very quickly and allows for temporary pavement and re-opening a street to traffic much quicker than traditional backfill methods. This is extremely important in Paradise where many roads are very narrow and may have to be closed during a water main construction project.

Comparison of costs to projects costs of private contractors

The District has traditionally used its own crews to construct our water main replacement projects. There is always a question whether our crews' costs are competitive with costs of private contractors. During the three-year project period the District will continue our existing main replacement program, but will be hiring private contractors to perform this work. This situation will provide an excellent opportunity to compare our costs with those of private contractors. This information will be made available to other agencies for their use in evaluating this issue.

A-10 Agency Authority

1. Attached is a Resolution (Figure 4) authorizing the District Manager to submit an application for this Urban Water Conservation Grant. Authorization to enter into a funding contract will be provided after the funding contract is presented to the District.
2. The Paradise Irrigation District was formed in 1916 and continues to operate under the authority of the State of California Water Code, Division 11, Section 20500 to 29978 derived from the 1897 Irrigation District Law.
3. The District is not required to hold an election before entering into a funding contract with the State.
4. The funding agreement will not be subject to review and/or approval by other government agencies.
5. There is no pending litigation that may impact the financial condition of the District, the operation of water facilities, or its ability to complete the proposed project.

Figure 4. Resolution Authorizing Grant Application

PARADISE IRRIGATION DISTRICT

RESOLUTION NO. 2002-03

A RESOLUTION OF THE BOARD OF DIRECTORS OF
THE PARADISE IRRIGATION DISTRICT
MAKING APPLICATION(S) TO THE CALIFORNIA DEPARTMENT OF WATER
RESOURCES TO OBTAIN A PROPOSITION 13
URBAN WATER CONSERVATION CAPITAL OUTLAY GRANT

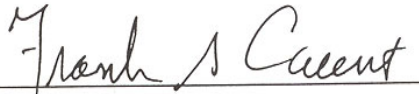
RESOLVED by the Board of Directors of the Paradise Irrigation District that pursuant and subject to all of the terms and provisions of the Urban Water Conservation Program (Chapter 8, Article 6 under the Safe drinking Water, Clean Water, Watershed Protection and Flood Protection Act [Proposition 13], Water Code Division 26), application by this Paradise Irrigation District be made to the California Department of Water Resources to obtain grant(s) under the Proposition 13 Urban Water Conservation Capital Outlay Grant Program.

The District Manager of the Paradise Irrigation District is hereby authorized and directed to prepare the necessary data, make investigations, sign, and file such application(s) with the California Department of Water Resources.

PASSED AND ADOPTED at a regular meeting of the Board of Directors of the Paradise Irrigation District on this 20th day of February 2002, by the following vote:

AYES: Directors Claude Powers, Stan Zemansky, Frank Caunt, John Heinke, and Rick Hall.
NOES: None.
ABSENT: None.

PARADISE IRRIGATION DISTRICT


Frank G. Caunt, President

ATTEST:


Katherine M. Welborn, Secretary

A-11 Operations and Maintenance

A summary of the Paradise Irrigation District's distribution system operation and maintenance costs for the fiscal years 1998-99 through 2002-03 is shown in Table A3. Funding for distribution system operation and maintenance comes from the District's general operating revenues, which are primarily generated through water rates and customer service charges.

Table A3. Summary of Distribution System Operation and Maintenance Costs

Fiscal Year	Distribution System O&M Costs
1998-1999	\$ 159,994.25
1999-2000	\$ 124,564.73
2000-2001	\$ 127,789.95
2001-2002	\$ 143,289.21
2002-2003 (partial)	\$ 64,413.29

Based on the District's experience with water main replacement, we anticipate that the new mains will experience virtually no leaks during the 40-year project economic life. Therefore, the most likely impact of completion of the main replacement program is a significant reduction in the District's distribution system operation and maintenance costs. Prior to completion of the necessary main replacements, the accelerated main replacement program should reduce O&M costs, or at least significantly reduce the rate of increase in distribution system O&M costs.

Part B—Engineering and Hydrologic Feasibility

B-1 Certification Statement

I, Ray A. Auerbach, a California registered civil engineer, have reviewed the information presented in support of this application. Based on this information, and any other knowledge I have regarding the proposed project, I find that it can be designed, constructed, and operated to accomplish the purpose for which it is planned. There is a sufficient water supply for the project.

Ray A. Auerbach,
California Registered Civil Engineer No. 20236

B-2 Project Reports and Previous Studies

No previous studies or reports have been formally prepared for this proposed water conservation project. This application has been prepared using a variety of reports and records, dealing with number of leaks, leak repair costs, water losses, and construction costs; and from record drawings revealing field conditions in the project areas. All of this information has been incorporated into the preliminary engineering design of the pipeline construction, and into the analysis of the benefits and costs of the proposed project.

B-3 Preliminary Project Plans and Specifications

Preliminary project plans for the 16 proposed pipeline replacements are contained in Appendix B. Since District crews will be constructing the proposed pipelines, detailed plans will not be necessary in order to assure construction quality; and will not be prepared, in order to save engineering costs and expedite project completion. Thorough field investigation of existing conditions and underground utility conflicts will be completed prior to construction.

Construction materials lists for each proposed project may be found in Appendix C. Paradise Irrigation District Pipeline Installation Procedures and Specifications have been included in Appendix D.

B-4 Construction Inspection Plan

Prior to pipeline construction, the Field Superintendent, the Assistant Superintendent, and the Assistant Engineer will inspect the project sites. This inspection will provide an opportunity to review the plans, consider construction staging and the logistics of the site, formulate a traffic control program, and identify any unusual conditions that may apply to the site.

During construction, the Assistant Superintendent will perform daily inspections and supervise ongoing construction site activities. The Field Superintendent and Assistant Engineer will provide periodic inspections during construction on an as-needed basis.

Upon completion of the project, the Assistant Superintendent will perform inspections of general site conditions (both within the construction zone and in nearby areas that may have been affected by construction activities), visible system components, and pavement restoration; and will make records for the purposes of developing as-built drawings. The Field Superintendent will perform the final site inspection.

Part C—Plan for Completion of Environmental Documentation and Permitting Requirements

C-1 California Environmental Quality Act and National Environmental Policy Act

Paradise Irrigation District will comply with California Environmental Quality Act (CEQA) requirements as they pertain to this project. (This project is not subject to NEPA requirements.)

District staff has conducted a Preliminary Review and Environmental Checklist for the proposed Phase 1 Water Main Replacement Project and has determined that there is not substantial evidence “in light of the whole record” that the project will have a significant environmental effect. The District will give notice that it proposes to adopt a Negative Declaration (14 Code Cal. Regs. Section 15072). The District Board of Directors will set a public hearing to consider adoption of a Negative Declaration, which will be held at least 20 calendar days after notification of all organizations and individuals who have previously requested such notice. Notification shall also be given by publication at least one time in a newspaper of general circulation in the area affected by the proposed project, and by posting of notices on and off site in the area where the project is to be located, including posting at the District Office and other facilities. Notices shall also be posted in the office of the Butte County Clerk. The proposed Negative Declaration will be available for review at the Paradise Irrigation District office, from the date of setting the public hearing, until the public hearing is held at a regularly scheduled District Board of Directors Meeting.

Following public review of the project at a public hearing duly noticed and posted as described, and after final approval has been made on the Negative Declaration and the project has been approved by the District Board; District staff will prepare a Notice of Determination (Exhibit “H”) incorporating the information presented at the public hearing, comments received on the proposal, and the District’s knowledge and independent research, and file it, including the Negative Declaration, with the Butte County Clerk.

The schedule for completion of the environmental documentation is included in Figure 2, Pipeline Replacement Project Plan and Work Schedule. Completed Environmental Impact Checklists for each of the three project phases are provided in Appendix E.

C-2 Permits, Easements, Licenses, Acquisitions, and Certifications

The proposed project requires encroachment permits from the Town of Paradise for all excavations within Town streets. These permits will be obtained prior to commencing pipeline construction on Town maintained roads.

Upon completion of construction, each new water main will require flushing. This flushing may result in discharge of water into local watercourses. These discharges are permitted in the District’s existing NPDES permit included in Appendix F.

C-3 Local Land Use Plans

This project is located within the Town of Paradise, and is in the area covered by the Paradise General Plan. Distribution mains selected for replacement have been sized to provide flows for domestic use to meet current demands and to provide sufficient capacity for additional development to build-out, under the Paradise General Plan. Mains have also been sized to provide flows for adequate fire protection, based on current Town of Paradise standards.

C-4 Applicable Legal Requirements

This project is subject to the following regulations:

1. California Environmental Quality Act.
2. Town of Paradise Encroachment Permit requirements.
3. NPDES Permit Provisions.
4. Paradise Irrigation District Accident Prevention Plan.

The District and its employees will comply with all applicable laws, regulations and permit requirements.

Part D- Need for Project and Community Involvement

D-1 Need for the Project

The Paradise Irrigation District receives almost all of its water supply from surface runoff from the Little Butte Creek watershed. The firm yield of this surface water source is 7,300 acre-feet per year, and an additional 200 acre-feet is available from one well. Current water demands are slightly greater than this firm supply, and additional water sources will be needed to supply an anticipated 20% growth in customer base. Water losses from leaking water mains have been the greatest contributor to the District's high percentage of water losses (32% in 1993). Current water losses have been reduced to approximately 17% due to a water main replacement program. However, since the District has recently experienced new increases in the number of surfacing leaks and unaccounted for water, it appears that main replacement must be accelerated to bring water losses down to an acceptable level (See Figure 1). The reduction in lost water will help to defer the need to construct expensive new facilities, and will reduce the amount of additional water supply sources needed to serve new development.

The Paradise Irrigation District must augment its water supply to meet current demands in dry years and to provide supplies for future anticipated growth. Recent studies have shown that the cost of augmenting water supplies is very expensive, and it appears that reducing water lost to pipeline leaks is a cost effective method of reducing these needs.

Butte County is a major focus for CALFED because of its abundant groundwater reserves (in the valley, not on the Paradise Ridge) and critical wildlife habitat. Butte County completed a Water Inventory and Analysis in 2001 using Prop. 204 funds. That analysis identified water supply problems in the Paradise Ridge area after one drought year similar to 1977.

In addition, the Butte Creek drainage area has been identified as a prime spring run salmon stream. Improved water management and water use efficiency will help maintain the improvements in that tributary to the Sacramento River. Finally, CALFED has adopted the California Urban Water Conservation Council's Best Management Practices (BMP) for Urban Water Conservation. Distribution System Audits, Leak Detection and Repair is a BMP that has been shown to be cost effective throughout California.

D-2 Outreach, Community Involvement, Support, Opposition

The District is working closely with the Butte County Department of Water and Resource Conservation and the Del Oro Water Company to investigate solutions to the water supply problems on the Paradise Ridge. A Memorandum of Understanding between these three agencies requires several public meetings each year to inform the public on the progress of this joint effort.

The District has, and will continue to make presentations to local service clubs and other organizations to explain the District's water supply situation. Response to the District's plans to enhance the community water supply is very positive. The public is knowledgeable about the impacts of the high percentage of lost water due to leaks, and is supportive of programs to reduce these water losses. See Appendix G for letters of support for this grant application. There is no known or anticipated opposition to this project.

Part E—Water Use Efficiency Improvements and Other Benefits

E-1 Water Use Efficiency Improvements

This project will result in an improvement in water use efficiency due to a significant reduction in the amount of water lost to water main leaks. The amount of water that must be supplied by new facilities will be reduced, and the costs of leak repair will be reduced. Treatment costs will also be reduced due to the reduction in the amount of water treated. Urban water supply reliability will be increased by reduction of the difference between current demand and firm supply. The quantifiable benefits resulting from the proposed project are as follows:

1. Additional water available due to the reduction in leaks is estimated to be 185 acre-feet as a result of the first year of this program.
2. The total amount of water saved during the 40 year economic life of the proposed program is 22,380 acre feet

3. The estimated current value of net operating cost savings from the first year of this program is \$22,400.
4. The estimated current value of net operating and capital cost savings over the life of the project is \$2,422,000.

E-2 Other Project Benefits

To the extent that leakage from existing water mains is reduced, less water will be diverted from Little Butte Creek, the District's primary water source. Less diversion from the creek results in increased flow in Little Butte Creek below the District's reservoirs. These increased flows end up in the Delta after flowing to Butte Creek and then the Sacramento River. These increased flows can have a positive impact on water availability and water quality in these systems. The Butte Creek drainage area has been identified as a prime spring run salmon stream.

Other benefits that will result from the main replacement project include better quality, due to the absence of iron oxides sloughed from the interior of corroded pipelines, and greater water reliability because of fewer leak related shutdowns. The absence of main line leaks will also reduce pavement problems initiated by saturated soils and leak repair excavations, and will also reduce the number and frequency of traffic disturbances.

Part F – Economic Justification: Benefits to Costs

F-1 Net Water Savings

The main replacement project consists of replacing approximately 3.7 miles of the District's water mains with some of the worst leak history. It is believed that all water savings are net savings since the Paradise Ridge is a hard rock formation and has no defined groundwater aquifer. The area does not appear to have a direct hydraulic connection to known aquifers located many miles from the District.

The main replacement project is estimated to save 185 acre-feet during the first year of the project and a total of 22,380 acre-feet over the 40-year review period (reported in Table 1). Calculations are based on historic leak records, and current leak repair and main replacement costs. The calculations are summarized in Appendix H.

Please note: Because this project has benefits that vary over time, the 'Long Form' economic tables have been used.

Table 1: Project Performance
Overall Project

Water Conservation Projects

Total Water Savings (AF)(1)	<u>22,380</u>
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(1) During Project Life, from Table 6

F-2 Project Budget and Budget Justification

Capital Costs for the proposed project budget for the main replacement project are shown in Table 2, below. (Long Form Table 5 has not been used since long term capital costs are not anticipated with this project.)

Based on the District's experience with its main replacement program and on the anticipated service life of the materials used to construct the replacement mains, the District expects that there will be virtually no leaks on the new mains during the 40-year review period. Therefore, Long Form Table 3, summarizing ongoing project driven operations and maintenance costs, has not been used.

Table 2: Capital Costs
Overall Project
Water Conservation Projects

	Capital Cost Category (a)	Cost (b)	Contingency		Subtotal (e) (b+d)
			Percent (c)	\$ (d) (bxc)	
(a)	Land Purchase/Easement	67,980	0	0	67,980
(b)	Planning/design/Engineering	65,526	0	0	65,526
(c)	Materials/Installation	880,143	10 %	88,014	968,157
(d)	Structures	0	0	0	0
(e)	Equipment Purchases/rentals	335,652	2 %	6,713	342,365
(f)	Environmental Mitigation/Enhancement	0	0	0	0
(g)	Construction Administration/Overhead	26,210	0	0	26,210
(h)	Project Legal/License Fees	0	0	0	0
(i)	Other	0	0	0	0
(j)	Total (1) (a + ... + i)				1,470,238

(1) Costs must match Project Budget prepared in Section A-3.

F-3 Economic Efficiency

Direct economic benefits anticipated from the proposed Leak Detection and Repair Program comprise capital cost savings consisting of the alternative cost for additional reservoir storage capacity, and the avoided cost of expenditures for increased capacity for raw water pumping, and water treatment. Capacity savings for pumping and treatment have been calculated based on the actual cost of construction for capacity in the District's existing pumping and treatment facilities.

Since the District's annual water demand currently exceeds firm supply, the District has undertaken a feasibility study of expansion of the District's reservoir storage at Paradise Lake (Geotechnical Services, Paradise Dam and Reservoir, Feasibility Study for Raising Paradise Lake, URS Corporation, 2002). Alternative cost savings for reservoir storage have been based on Alternative P-II RE from this report, which is the lowest cost alternative per acre-foot of storage developed. The District Board of Directors has indicated their interest in pursuing the Paradise Reservoir

enlargement project in order to meet the requirements of continued growth and increased water demand. (See Appendix E for minutes of the District Board regarding a potential raise of Paradise Dam.) It is anticipated that the environmental permitting phase for this project could commence within three to five years.

Project benefits due to water supply benefits are summarized in Table 6. (Long Form Table 4 has not been used since benefits change over time.) The economic efficiency analysis based on capital cost savings alone predicts a benefit to cost ratio of 1.17 (see Table 7).

Additional quantifiable economic benefits come from Operation and Maintenance (O&M) cost savings consisting of the avoided incremental cost of water treatment (energy and chemicals) for water lost to leaks, and the avoided cost of repairing main line leaks. The value of the treatment benefit has been computed on the basis of current energy costs, and chemical prices and feed rates. The value of the benefit for avoided leak costs was computed on the basis of actual average costs per main line leak repair. These benefits are summarized (along with water supply benefits) in Table 6a. The economic efficiency analysis based on capital cost savings *and* O&M savings results in a benefit to cost ratio of 1.65 as shown in Table 7a.

The economic efficiency analyses have been based on the following information and assumptions:

- The economic life of the project is assumed to be 40 years.
- Inflation has been assumed to be zero.
- A six percent discount rate has been used.
- All costs and benefits in the analysis have been converted to present value.
- All anticipated project costs have been included in the analysis regardless of funding source.
- Based on historical trends in leaks and unaccounted-for water it is assumed that, of the current annual 1,400 acre-feet unaccounted-for, 1,000 acre-feet of this amount is due to mainline leaks.
- The District maintains an extensive database of mainline leaks by pipeline. This data is used to prioritize the mainline replacement process. Assuming that the water loss for a given mainline segment is proportional to the number of surfaced leaks, the leakage for a given main segment can be estimated as a portion of the 1,000 acre-feet total loss.
- The new main is assumed to eliminate all leaks from that mainline segment for the 40-year life of the project.
- During the ten-year period from 1984-1993, immediately prior to instituting a mainline replacement program, the District averaged a 20 percent annual rate of increase in surfacing pipeline leaks, equating to a six-fold increase in leaks over the ten-year period. For the purposes of this analysis, under the no-project alternative the number of mainline leaks is conservatively assumed to increase at the rate of 5 percent per year.
- The cost to repair a mainline leak is based on the District's actual average cost per repair.

Table 6: Project Benefits (Long Form)
Overall Project

Water Conservation Projects

Year (a)	Water Conservation Savings (b)	Discount Factor (6.0%) (c)	Water Supply Benefits(1) (d)	Total Discounted Benefits (e) (cxd)
0	0	1.000	0	0
1	185	0.943	713,941	673,246
2	195	0.890	35,697	31,770
3	204	0.840	37,482	31,485
4	214	0.792	39,356	31,170
5	225	0.747	41,324	30,869
6	236	0.705	43,390	30,590
7	248	0.665	45,559	30,297
8	261	0.627	47,837	29,994
9	274	0.592	50,229	29,736
10	287	0.558	52,741	29,429
11	302	0.527	55,378	29,184
12	317	0.497	58,147	28,899
13	333	0.469	61,054	28,634
14	349	0.442	64,107	28,335
15	367	0.417	67,312	28,069
16	385	0.394	70,678	27,847
17	404	0.371	74,212	27,532
18	425	0.350	77,922	27,273
19	446	0.331	81,818	27,082
20	468	0.312	85,909	26,804
21	492	0.294	90,205	26,520
22	516	0.278	94,715	26,331
23	542	0.262	99,451	26,056
24	569	0.247	104,423	25,793
25	598	0.233	109,644	25,547
26	627	0.220	115,127	25,328
27	659	0.207	120,883	25,023
28	692	0.196	126,927	24,878
29	726	0.185	133,273	24,656
30	763	0.174	139,937	24,349
31	801	0.164	146,934	24,097
32	841	0.155	154,281	23,913
33	883	0.146	161,995	23,651
34	927	0.138	170,094	23,473
35	973	0.130	178,599	23,218
36	1,022	0.123	187,529	23,066
37	1,073	0.116	196,905	22,841
38	1,127	0.109	206,751	22,536
39	1,183	0.103	217,088	22,360
40	1,242	0.097	227,943	22,110
TOTAL	22,380		4,786,795	1,713,991

(1) Total avoided costs, alternative costs or revenue benefits.

Table 6a: Project Benefits
Overall Project
(Including Benefit from Avoided O&M Costs)
Water Conservation Projects

Year (a)	Water Conservation Savings (b)	Discount Factor (6.0%) (c)	Water Supply Benefits(1) (d)	Avoided O&M Costs (e)	Total Benefit (f) (d+e)	Total Discounted Benefits (g) (cxf)
0	0	1.000	0	0	0	0
1	185	0.943	713,941	22,433	736,374	694,401
2	195	0.890	35,697	23,555	59,252	52,734
3	204	0.840	37,482	24,733	62,215	52,260
4	214	0.792	39,356	25,969	65,325	51,738
5	225	0.747	41,324	27,268	68,592	51,238
6	236	0.705	43,390	28,631	72,021	50,775
7	248	0.665	45,559	30,063	75,622	50,289
8	261	0.627	47,837	31,566	79,403	49,786
9	274	0.592	50,229	33,144	83,374	49,357
10	287	0.558	52,741	34,801	87,542	48,849
11	302	0.527	55,378	36,542	91,919	48,442
12	317	0.497	58,147	38,369	96,515	47,968
13	333	0.469	61,054	40,287	101,341	47,529
14	349	0.442	64,107	42,301	106,408	47,032
15	367	0.417	67,312	44,416	111,729	46,591
16	385	0.394	70,678	46,637	117,315	46,222
17	404	0.371	74,212	48,969	123,181	45,700
18	425	0.350	77,922	51,418	129,340	45,269
19	446	0.331	81,818	53,989	135,807	44,952
20	468	0.312	85,909	56,688	142,597	44,490
21	492	0.294	90,205	59,522	149,727	44,020
22	516	0.278	94,715	62,498	157,213	43,705
23	542	0.262	99,451	65,623	165,074	43,249
24	569	0.247	104,423	68,905	173,328	42,812
25	598	0.233	109,644	72,350	181,994	42,405
26	627	0.220	115,127	75,967	191,094	42,041
27	659	0.207	120,883	79,766	200,648	41,534
28	692	0.196	126,927	83,754	210,681	41,293
29	726	0.185	133,273	87,942	221,215	40,925
30	763	0.174	139,937	92,339	232,276	40,416
31	801	0.164	146,934	96,956	243,889	39,998
32	841	0.155	154,281	101,803	256,084	39,693
33	883	0.146	161,995	106,894	268,888	39,258
34	927	0.138	170,094	112,238	282,333	38,962
35	973	0.130	178,599	117,850	296,449	38,538
36	1,022	0.123	187,529	123,743	311,272	38,286
37	1,073	0.116	196,905	129,930	326,835	37,913
38	1,127	0.109	206,751	136,426	343,177	37,406
39	1,183	0.103	217,088	143,248	360,336	37,115
40	1,242	0.097	227,943	150,410	378,353	36,700
TOTAL	22,380		4,786,795	2,709,943	7,496,737	2,421,891

(1) Total avoided costs, alternative costs or revenue benefits.

Table 7: Benefit/Cost Ratio
Overall Project
Water Conservation Projects
(Long Form)

Project Benefits \$(1)	1,713,991
Project Costs \$(2)	1,470,238
Benefit/Cost Ratio	1.17

(1) From Table 6: Project Benefits (Long Form)

(2) From Table 2: Project Costs (Long Form)

Table 7a: Benefit/Cost Ratio
Overall Project
(Including Benefit from Avoided O&M Costs)
Water Conservation Projects
(Long Form)

Project Benefits \$(1)	2,421,891
Project Costs \$(2)	1,470,238
Benefit/Cost Ratio	1.65

(1) From Table 6a: Project Benefits (Long Form)

(2) From Table 2: Project Costs (Long Form)

- Similarly, the cost of mainline installation has been based on the District's actual current cost for pipeline installation.
- Due to the increasing number of leaks with each passing year under the no-project alternative, the water savings under the project alternative also increase. These increased water savings create an incremental increase in capacity savings that has then been assigned a current value in computing the total project benefits over the project life.

Additional information regarding the economic efficiency analysis and a detailed tabulations of the benefit to cost ratio analysis on a phase-by-phase basis is contained in Appendix E.

APPENDIX A

RESUMES

RESUME

RAY A. AUERBACH

EXPERIENCE SUMMARY

Ray Auerbach is the Manager of the Paradise Irrigation District and has 35 years experience in water resources finance, administration, engineering, operations and intergovernmental relations. Mr. Auerbach has a strong background in engineering and project management for various types of projects, including pipeline replacement.

DETAILED EXPERIENCE

Paradise Irrigation District

- Manager of the Paradise Irrigation District from June 1998 to present. Under policy direction of a five-member elected Board of Director is responsible for all District functions including engineering, finance, operations and maintenance and intergovernmental and public relations.
- Secured a \$493,000 grant from the Department of Water Resources to investigate the feasibility of additional water supply options.
- Managed and participated in the preparation of the 2000 Urban Water Management Plan.
- Revised financial and management reports submitted to the Board of Directors.
- Participated in Drafting the Memorandum of Understanding between the District, the Butte County Department of Water and Resource Conservation and the Del Oro Water Company.

Raymond C. Miller, P.E. and Roberson and Associates

- Associated with Raymond C. Miller and Don Roberson from June 1997 to June 1998.
- Provided contract management services to the City of San Juan Capistrano and the Tri-Cities Municipal Water District.

Capistrano Valley Water District

- General Manager from July 1987 to June 1997. Assistant General Manager/District Engineer from January 1986 to June 1987.
- Reduced unaccounted for water from over 10% to 5%
- Established a replacement program to replace the District's aging infrastructure.
- Secured additional water capacity in a new regional water supply pipeline.

City of Anaheim Public Utilities Department

- Served in several positions between December 1968 and December 1985, including nine years as Water Engineering Manager.
- Responsible for budgeting, planning, engineering and contract engineering for Orange County's largest retail water agency.

Los Angeles County Flood Control District

- Civil Engineering Assistant and Senior Civil Engineering Assistant from July 1966 to November 1968.

Irvine Ranch Water District Board of Directors

- Member of Board of Directors from December 1979 to June 1998.

PROFESSIONAL AFFILIATIONS

- American Water Works Association
- American Society of Civil Engineers

PROFESSIONAL REGISTRATION

- Registered Civil Engineer in California, No. 20236

EDUCATION

- East Los Angeles College – Associate of Arts Degree, 1964
- California State University at Los Angeles – Bachelor of Science Degree, Civil Engineering, 1966
- Numerous training sessions and seminars in supervision, management, public relations, etc.

RESUME

JOHN H. PRICE

EXPERIENCE SUMMARY

John Price is the Field Superintendent for the Paradise Irrigation District and has 30 years experience in construction and construction management. Mr. Price has considerable experience in underground construction with an emphasis on water main, fire hydrant and other water system component installation and maintenance.

DETAILED EXPERIENCE

Paradise Irrigation District

- **Superintendent** of the Paradise Irrigation District, with nine years of experience. Responsible for the day-to-day operations of the District's water distribution system consisting of approximately 170 miles of pipeline and nearly 10,000 water meter services.
- Supervise a 20-person crew engaged in system operation, maintenance and construction, facility upkeep, fleet vehicle maintenance, meter reading, etc.
- Develop and oversee the District's Capital Improvement program for pipeline replacement averaging about 9,000 feet of pipe replacement yearly.
- Develop and maintain records documenting systems repairs to include water main leaks, service pipe leaks and fire hydrant installation and repair and the District's leak detection program.
- **Utility Foreman** of the Paradise Irrigation District with eight years of experience. Responsible for installing and maintaining the District's water pipe system.
- **Equipment Operator** for the Paradise Irrigation District with five years' experience. Operated heavy equipment during the installation and maintenance of the District's water distribution system.

City of Santa Cruz

- **Construction Specialist** for the City of Santa Cruz Street Department with seven years' experience. Operated equipment and supervised crews during the construction and maintenance of City streets and drainage systems. Built roads, curbs, gutters, sidewalks, and installed storm drain systems and piping.

Education

- Associate of Arts Degree in Drafting Technology.
- U.S. Army Signal School, Fort Monmouth, New Jersey, Fixed Plant Carrier Equipment Repair School.

RESUME

NEIL ESSILA

EXPERIENCE

Paradise Irrigation District

12/98-Present

Assistant Engineer. Performed analysis and design activities for various types of projects. Researched and acquired rights of way. Performed distribution system hydraulic model development and application. Revised District pipeline standard drawings and specifications. Reviewed project proposals and drafted conditions and agreements. Performed plan checking and construction inspection on developer projects. Initiated District use of AutoCAD and conversion of hand-drawn system maps to CAD mapping.

University of Minnesota, Minneapolis, Minnesota

11/97-2/98

Research Fellow –Developed a computer model to allow the extension of theoretical membrane-supported biofilm model studies at the microscopic scale to medium scale wastewater treatment facilities. Collaborated on experimental program development.

RCM Associates, Minnetonka, Minnesota

4/95-9/96

Project Engineer – Water Resources Department. Performed water system studies including computerized hydraulic analysis of distribution systems, and assessments of system sources, treatment, and storage. Drafted water utility Emergency Preparedness and Conservation Plans. Designed municipal wells, including collection of hydrogeologic data and study of hydrologic effect of water withdrawals from a politically sensitive, protected aquifer. Completed hydraulic and hydrologic analyses for storm water management.

Barr Engineering Company, Minneapolis, Minnesota

6/93-9/94

Civil Engineering Intern – Performed a wide range of technical duties including analysis, computation, drafting, writing, and fieldwork. Assisted in preparation of plans, specifications, and engineers' cost estimate for water treatment plant expansion. Also carried out hydraulic analyses, checked design computations, and sized some system components for this project.

PROFESSIONAL REGISTRATION: Engineer in Training

PROFESSIONAL ASSOCIATIONS:

American Water Works Association
American Society of Civil Engineers

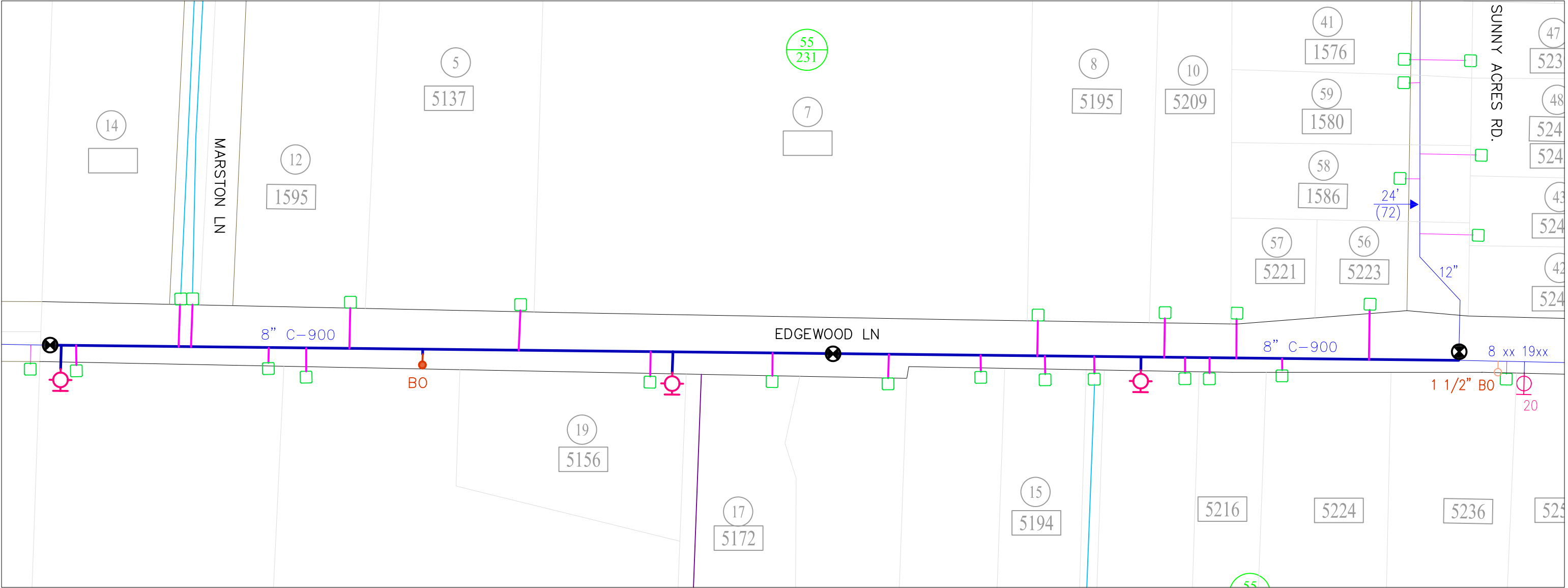
EDUCATION:

Master of Science in Civil Engineering with environmental emphasis. University of Minnesota, 1997.









Bachelor of Civil Engineering *Magna Cum Laude*, with environmental emphasis in water treatment. Institute of Technology, University of Minnesota, 1994.

APPENDIX B

PRELIMINARY PROJECT PLANS



SYMBOL KEY

- | | | | |
|---|---------------------|---|-----------|
|  | PROPOSED WATER MAIN |  | BLOW OFF |
|  | GATE VALVE |  | AIR VALVE |
|  | FIRE HYDRANT |  | AIR VAC |
|  | METER SERVICE |  | REDUCER |



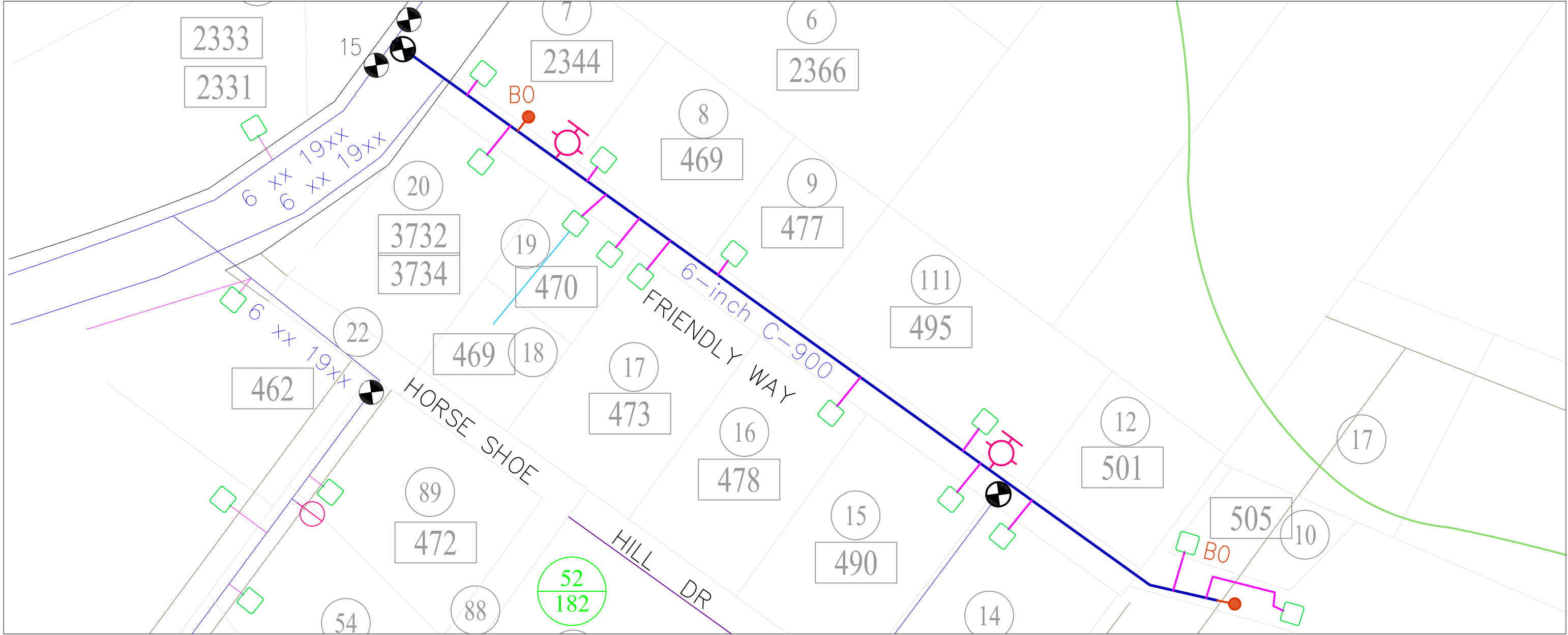
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California Registered Civil Engineer #20236

PARADISE IRRIGATION DISTRICT
MAIN REPLACEMENT
PHASE 1









PROJECT 2
EDGEWOOD LANE
1,500 FEET 8-INCH WATER MAIN
PRELIMINARY DESIGN

11/25/02

APP B-2



SYMBOL KEY

- | | | | |
|---|---------------------|---|-----------|
|  | PROPOSED WATER MAIN |  | BLOW OFF |
|  | GATE VALVE |  | AIR VALVE |
|  | FIRE HYDRANT |  | AIR VAC |
|  | METER SERVICE |  | REDUCER |

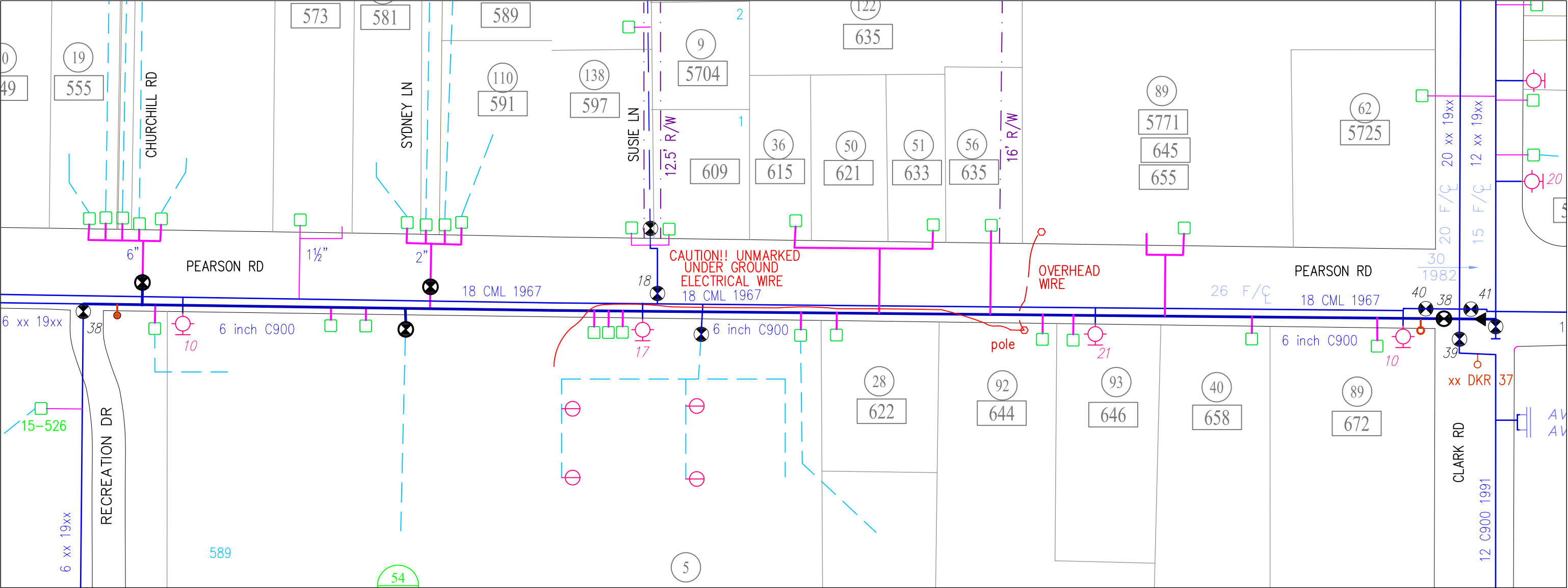


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PARADISE IRRIGATION DISTRICT
MAIN REPLACEMENT
PHASE 1

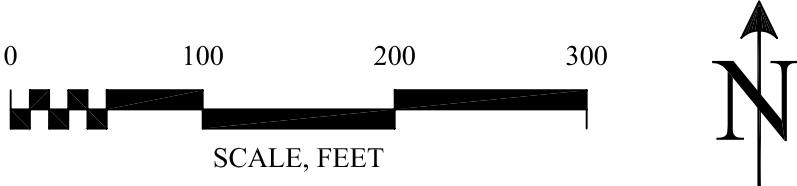
PROJECT 3
FRIENDLY WAY

625 FEET 6-INCH WATER MAIN
PRELIMINARY DESIGN



- SYMBOL KEY

	PROPOSED WATER MAIN		BLOW OFF
	GATE VALVE		AIR VALVE
	FIRE HYDRANT		AIR VAC
	METER SERVICE		REDUCER



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PARADISE IRRIGATION DISTRICT

MAIN REPLACEMENT

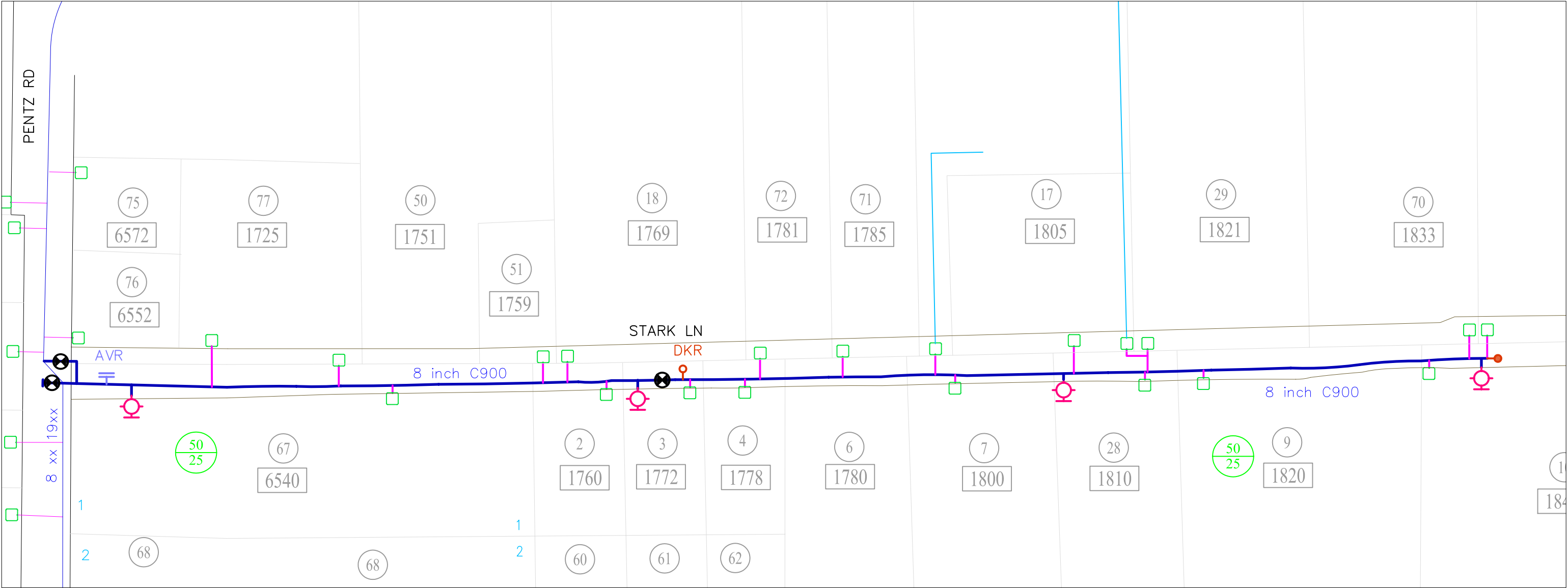
PHASE 1

PROJECT 4









PEARSON ROAD

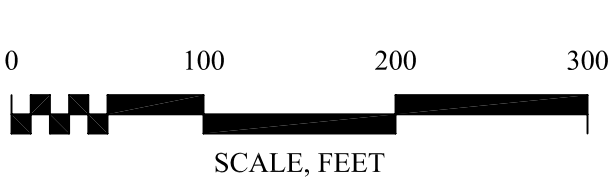
1,400 FEET 6-INCH WATER MAIN

PRELIMINARY DESIGN



SYMBOL KEY

- | | | | |
|---|---------------------|---|-----------|
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|  | GATE VALVE |  | AIR VALVE |
|  | FIRE HYDRANT |  | AIR VAC |
|  | METER SERVICE |  | REDUCER |



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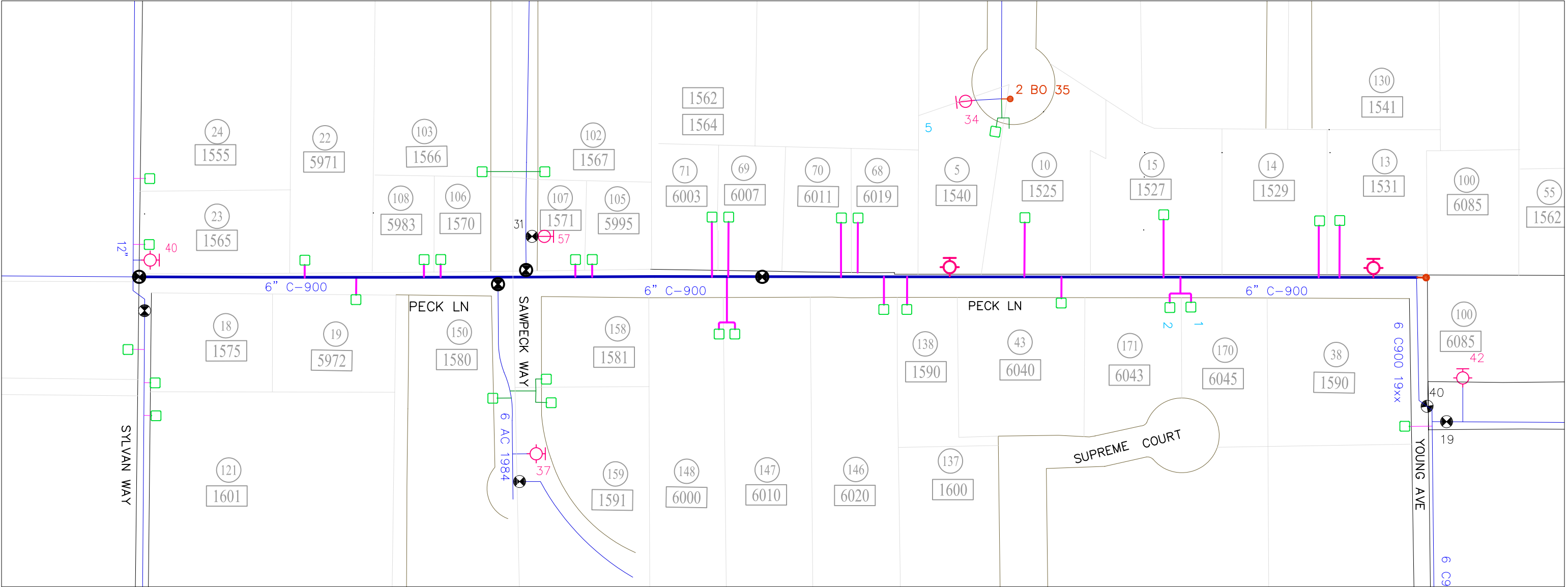
PARADISE IRRIGATION DISTRICT
MAIN REPLACEMENT
PHASE 1

PROJECT 5
STARK LANE

1,450 FEET 8-INCH WATER MAIN
PRELIMINARY DESIGN

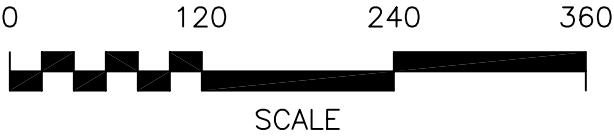
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APP B-5



SYMBOL KEY

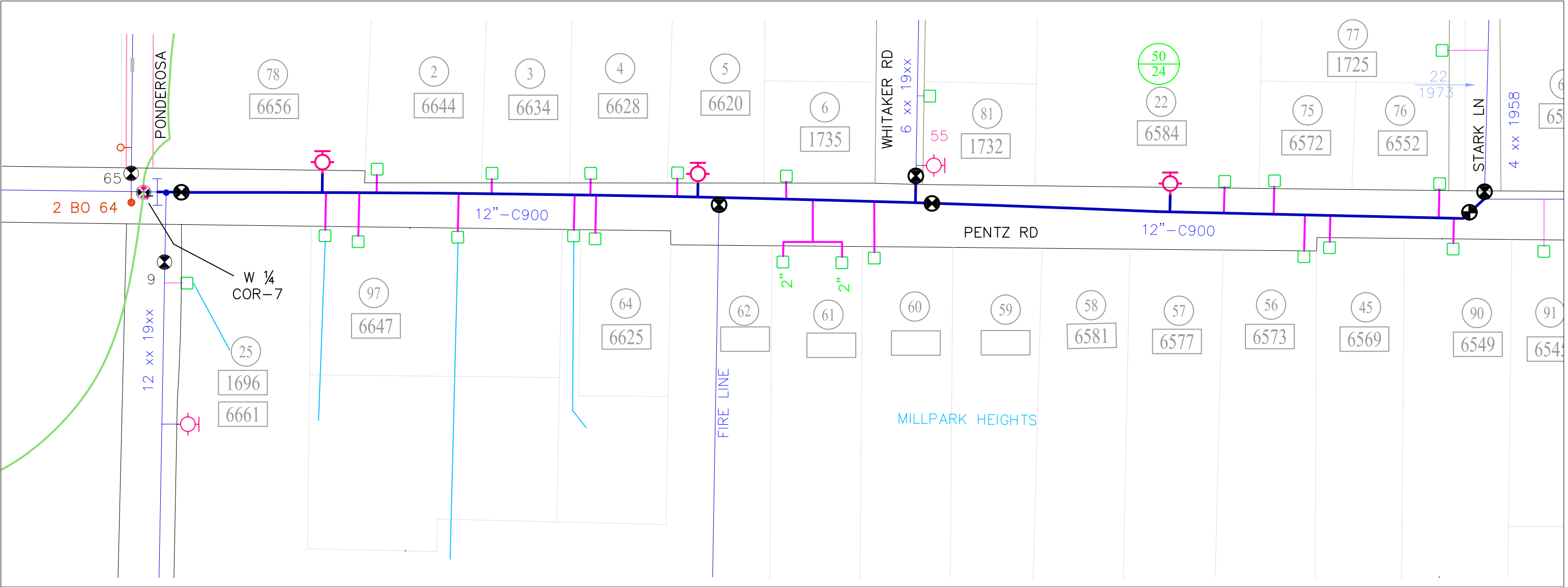
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| | PROPOSED WATER MAIN | | BLOW OFF |
| | GATE VALVE | | AIR VALVE |
| | FIRE HYDRANT | | AIR VAC |
| | METER SERVICE | | REDUCER |



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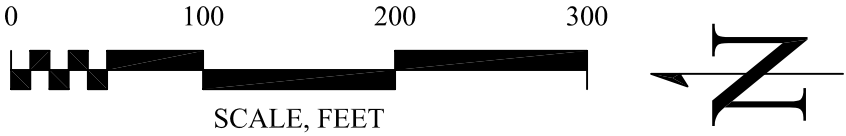
PARADISE IRRIGATION DISTRICT
MAIN REPLACEMENT
PHASE 2
PROJECT 6
PECK LANE

1,800 FEET 6-INCH WATER MAIN
PRELIMINARY DESIGN



SYMBOL KEY

- | | | | |
|--|---------------------|--|-----------|
| | PROPOSED WATER MAIN | | BLOW OFF |
| | GATE VALVE | | AIR VALVE |
| | FIRE HYDRANT | | AIR VAC |
| | METER SERVICE | | REDUCER |



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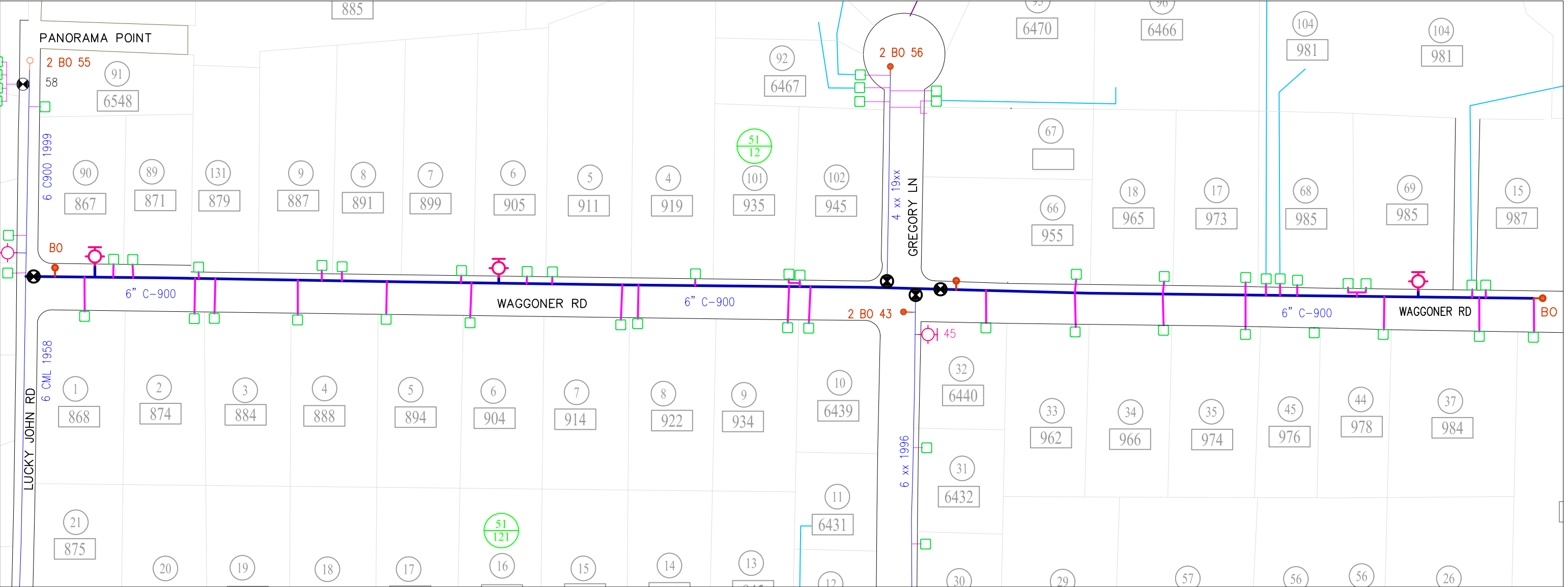
PARADISE IRRIGATION DISTRICT
MAIN REPLACEMENT
PHASE 2

PROJECT 7
PENTZ ROAD

1,300 FEET 12-INCH WATER MAIN
PRELIMINARY DESIGN

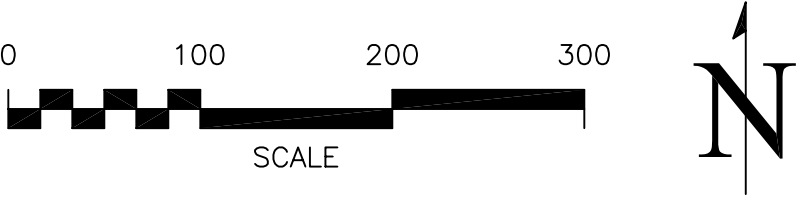
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APP B-7



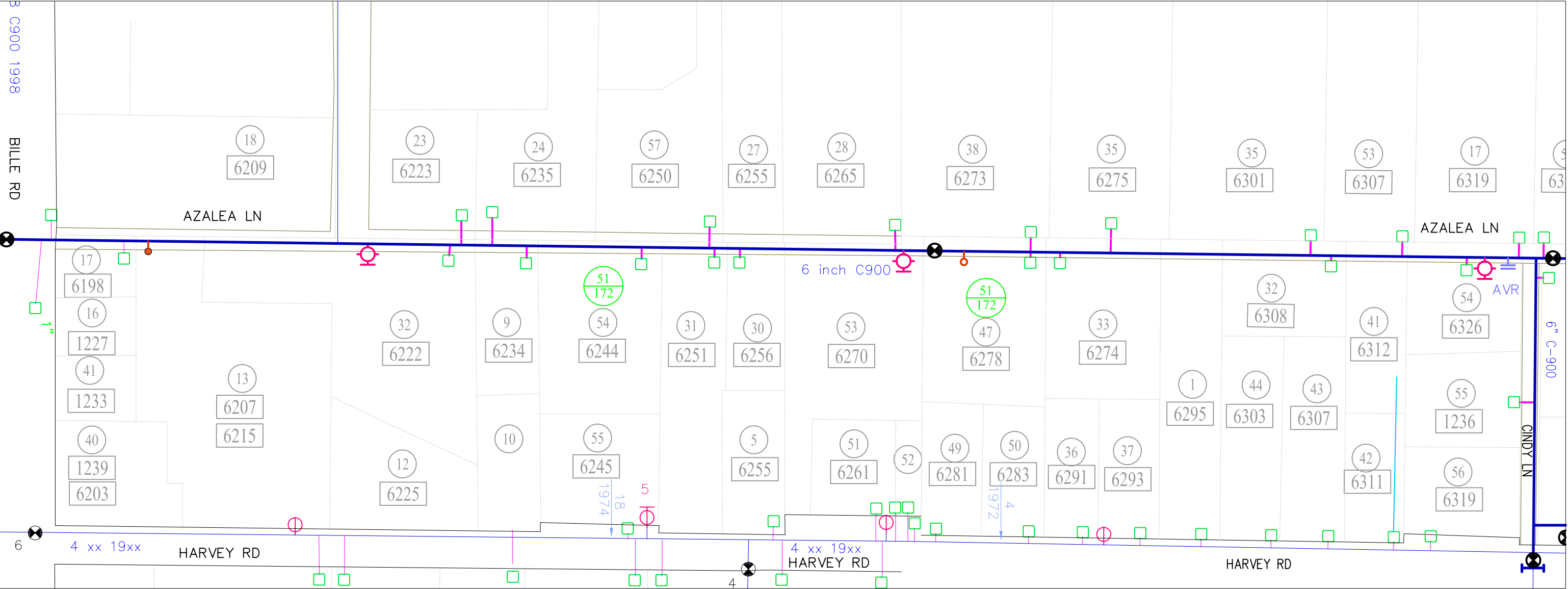
SYMBOL KEY

- | | | | |
|--|---------------------|--|-----------|
| | PROPOSED WATER MAIN | | BLOW OFF |
| | GATE VALVE | | AIR VALVE |
| | FIRE HYDRANT | | AIR VAC |
| | METER SERVICE | | REDUCER |











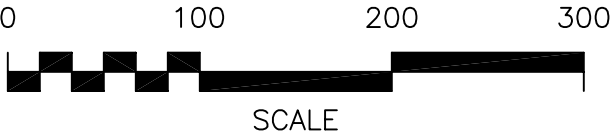
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PARADISE IRRIGATION DISTRICT
MAIN REPLACEMENT
PHASE 2
PROJECT 8
WAGGONER ROAD
1,500 FEET 6-INCH WATER MAIN
PRELIMINARY DESIGN



SYMBOL KEY

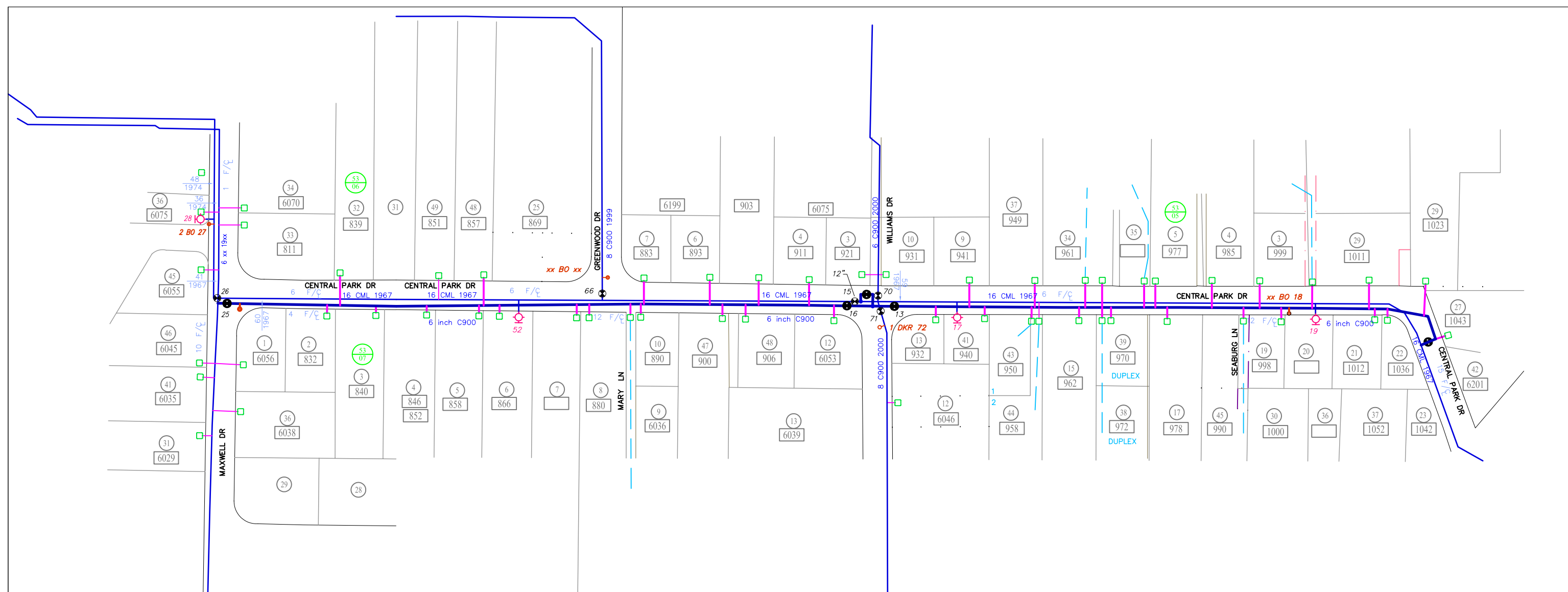
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|---|---------------------|---|-----------|
|  | PROPOSED WATER MAIN |  | BLOW OFF |
|  | GATE VALVE |  | AIR VALVE |
|  | FIRE HYDRANT |  | AIR VAC |
|  | METER SERVICE |  | REDUCER |











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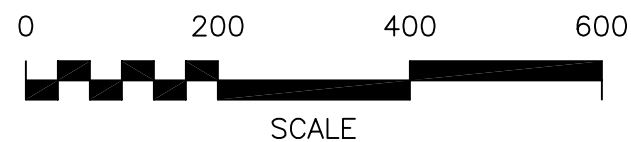
PARADISE IRRIGATION DISTRICT
MAIN REPLACEMENT
PHASE 3

PROJECT 9
AZALEA LANE
1,900 FEET 6-INCH WATER MAIN
PRELIMINARY DESIGN



SYMBOL KEY

- | | | | |
|---|---------------------|---|-----------|
|  | PROPOSED WATER MAIN |  | BLOW OFF |
|  | GATE VALVE |  | AIR VALVE |
|  | FIRE HYDRANT |  | AIR VAC |
|  | METER SERVICE |  | REDUCER |



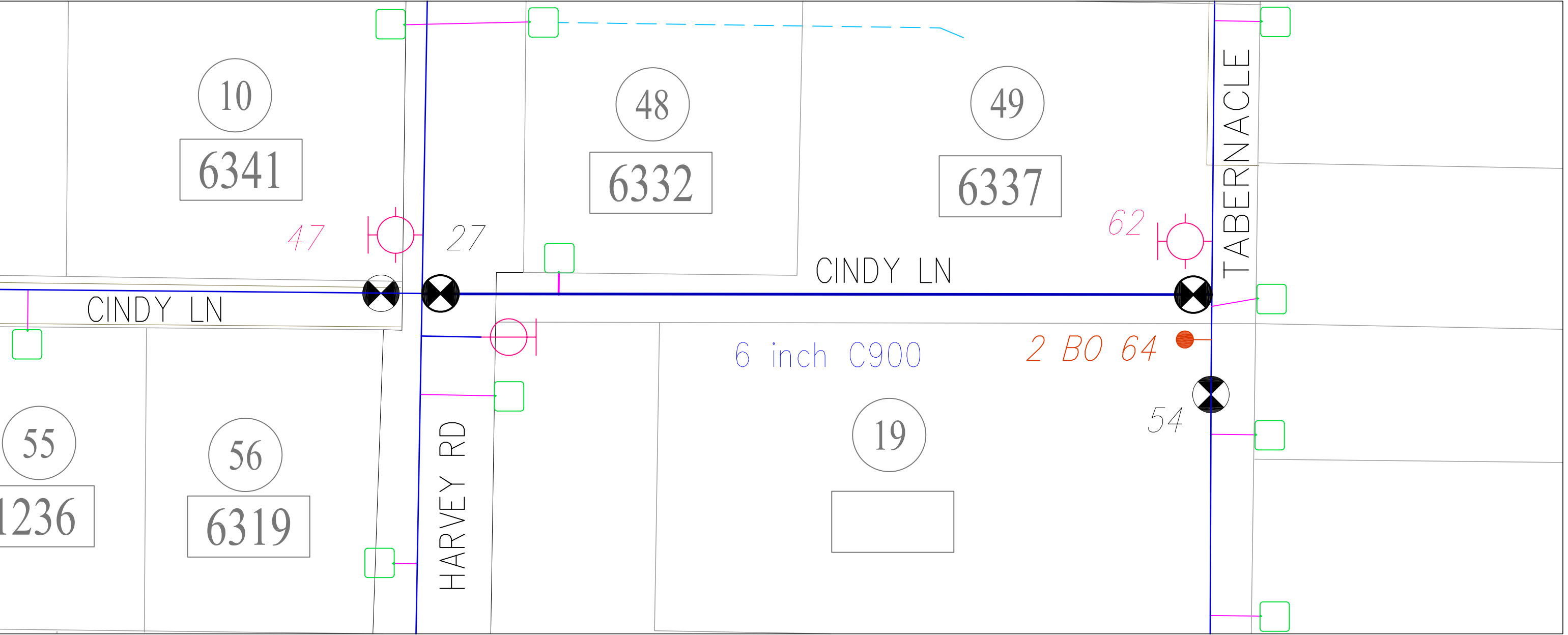
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PARADISE IRRIGATION DISTRICT MAIN REPLACEMENT PHASE 3









PROJECT 10
CENTRAL PARK DRIVE
2,500 FEET 6-INCH WATER MAIN
PRELIMINARY DESIGN

11/25/02

APP B-10



SYMBOL KEY

- | | | | |
|---|---------------------|---|-----------|
|  | PROPOSED WATER MAIN |  | BLOW OFF |
|  | GATE VALVE |  | AIR VALVE |
|  | FIRE HYDRANT |  | AIR VAC |
|  | METER SERVICE |  | REDUCER |



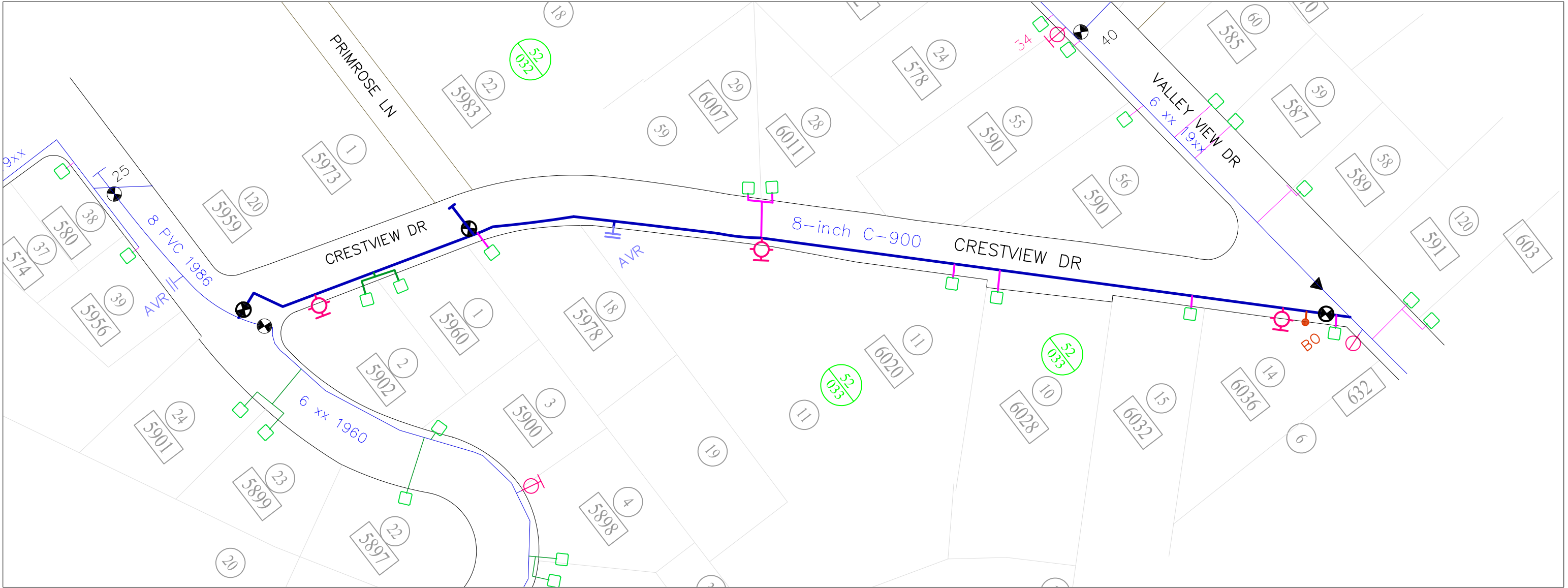
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PARADISE IRRIGATION DISTRICT
MAIN REPLACEMENT
PHASE 3

PROJECT 11

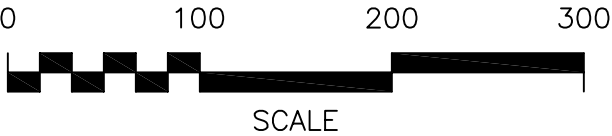
CINDY LANE

350 FEET 6-INCH WATER MAIN
PRELIMINARY DESIGN



SYMBOL KEY

- | | | | |
|--|---------------------|--|-----------|
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| | GATE VALVE | | AIR VALVE |
| | FIRE HYDRANT | | AIR VAC |
| | METER SERVICE | | REDUCER |

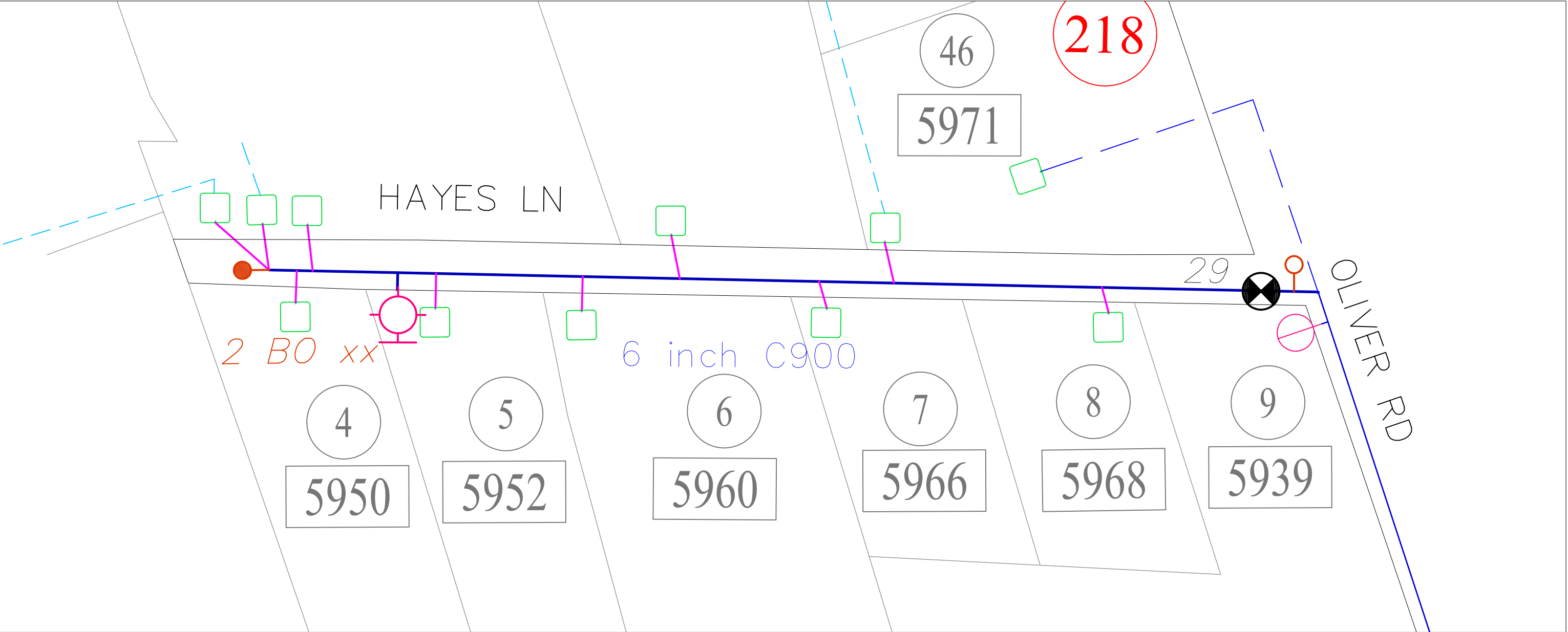


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PARADISE IRRIGATION DISTRICT
MAIN REPLACEMENT
PHASE 3

PROJECT 13
CRESTVIEW DRIVE

1,150 FEET 8-INCH WATER MAIN
PRELIMINARY DESIGN



SYMBOL KEY

- | | | | |
|--|---------------------|--|-----------|
| | PROPOSED WATER MAIN | | BLOW OFF |
| | GATE VALVE | | AIR VALVE |
| | FIRE HYDRANT | | AIR VAC |
| | METER SERVICE | | REDUCER |

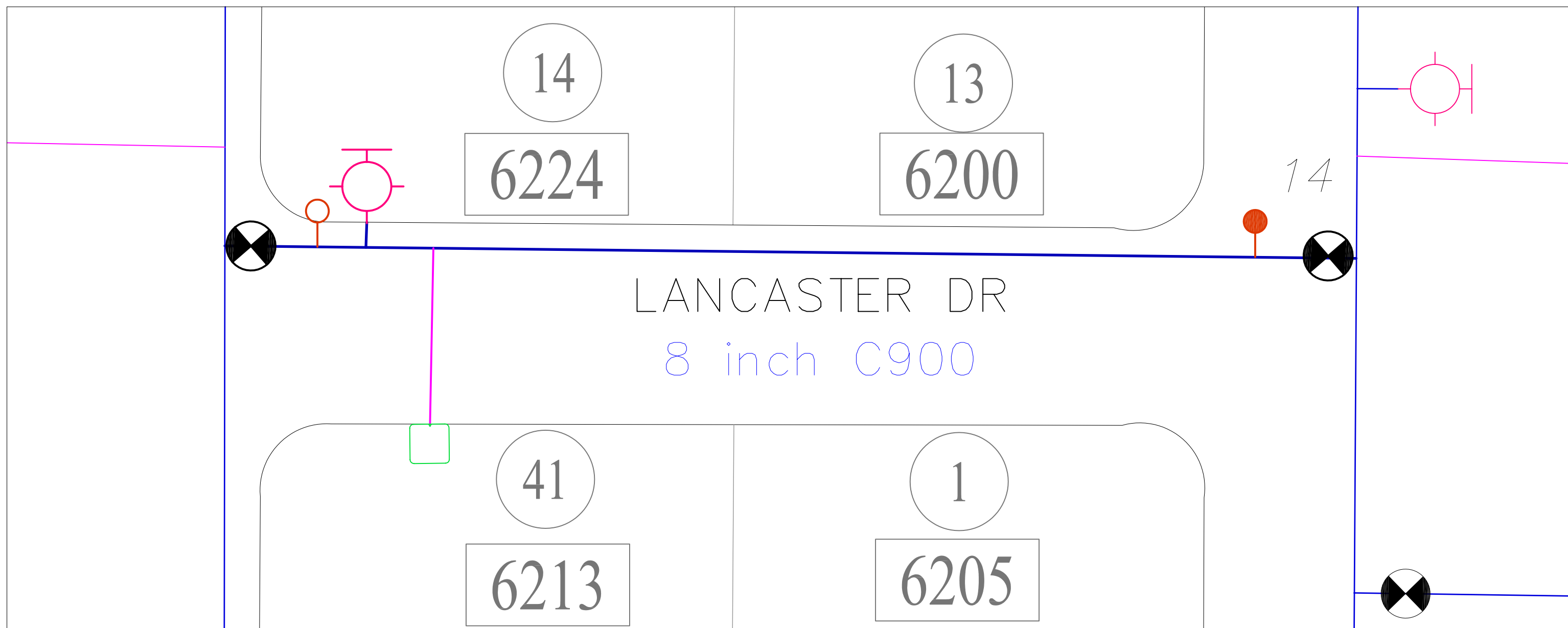


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PARADISE IRRIGATION DISTRICT
MAIN REPLACEMENT
PHASE 3

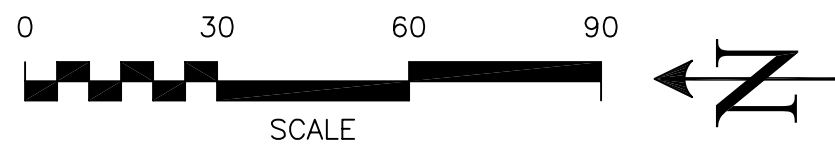
PROJECT 14
HAYES LANE

450 FEET 6-INCH WATER MAIN
PRELIMINARY DESIGN



SYMBOL KEY

- | | | | |
|---|---------------------|---|-----------|
|  | PROPOSED WATER MAIN |  | BLOW OFF |
|  | GATE VALVE |  | AIR VALVE |
|  | FIRE HYDRANT |  | AIR VAC |
|  | METER SERVICE |  | REDUCER |



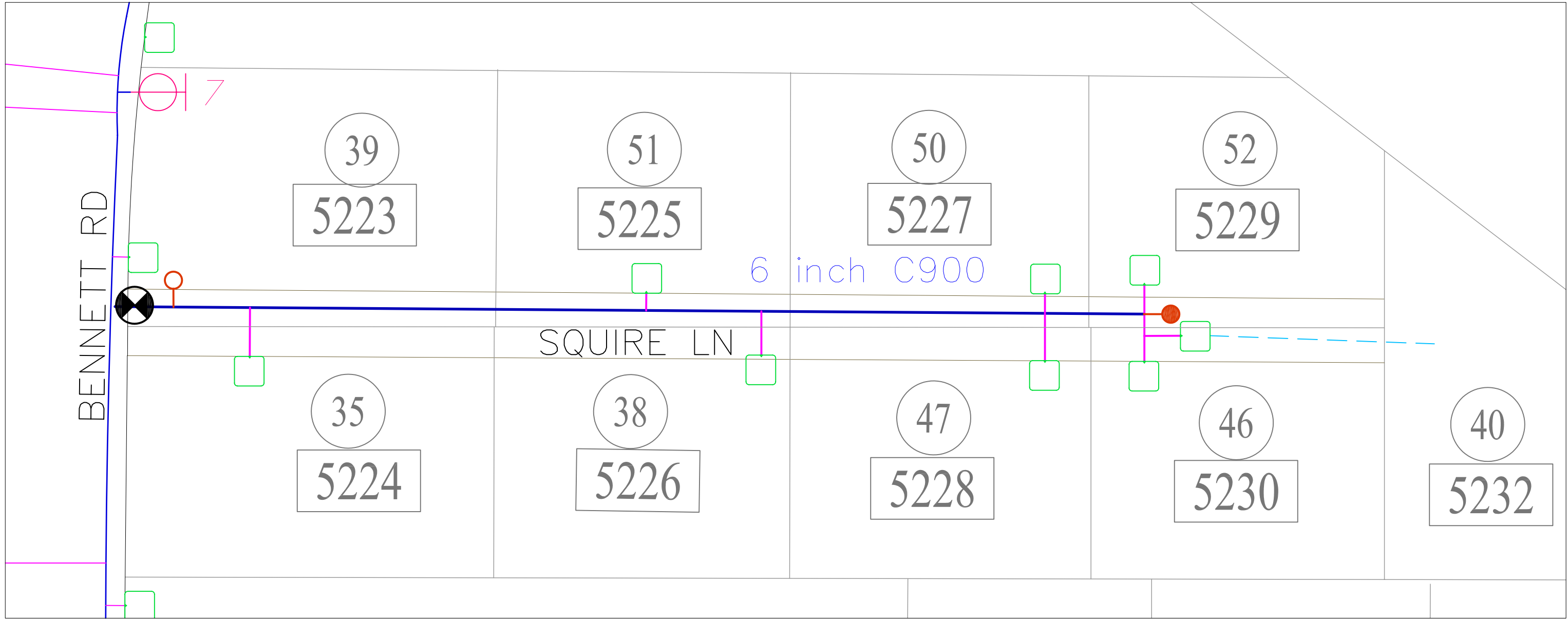
Prepared under the supervision of Ray Auerbach
California Registered Civil Engineer #20236

PARADISE IRRIGATION DISTRICT MAIN REPLACEMENT PHASE 3









PROJECT 15

LANCASTER DRIVE

350 FEET 8-INCH WATER MAIN PRELIMINARY DESIGN



SYMBOL KEY

- | | |
|---|---|
|  PROPOSED WATER MAIN |  BLOW OFF |
|  GATE VALVE |  AIR VALVE |
|  FIRE HYDRANT |  AIR VAC |
|  METER SERVICE |  REDUCER |



Prepared under the supervision of Ray Auerbach
California Registered Civil Engineer #20236

PARADISE IRRIGATION DISTRICT
**MAIN REPLACEMENT
PHASE 3**
PROJECT 16
SQUIRE LANE
450 FEET 6-INCH WATER MAIN
PRELIMINARY DESIGN

APPENDIX C

CONSTRUCTION MATERIAL LISTS

1

PROJECT: BUTTEVIEW TERRACE

20

2002 PRICES

APP C-1

MATERIALS LIST

PHASE: 1

PROJECT: EDGEWOOD LANE

2002 PRICES

PRIMARY MAIN SIZE:		SIZE		#		WIDTH		# SERVICES		DEPTH		LENGTH		# UNITS		UNITS		UNIT PRICE		W/TAX		TOTAL COST	
MATERIAL		8		20		2		2		2		2		2		2		2		2		2	
TRENCH SAND																							
SERVICE SAND																							
TRENCH BASE																							
SERVICE BASE																							
SERVICE MIX																							
SERVICE ASPHALT																							
C-900																							
WIRE																							
SERVICE SADDLES																							
COPPER TUBING																							
CORP STOPS																							
ANGLE STOPS																							
METER BOXES																							
BOX LID																							
G-5																							
G-5 LID																							
8" CAN MATERIAL																							
GATE VALVES																							
CI BENDS																							
CI ADAPTERS																							
NUT BOLT SETS																							
GASKETS																							
TAPPING SLEEVES																							
MISC.																							
TOTAL MATERIAL																							

MATERIALS LIST

PHASE: 1

PROJECT: FRIENDLY

PRIMARY MAIN SIZE:		6		# SERVICES			15					TOTAL
MATERIAL	SIZE	#	WIDTH	DEPTH	LENGTH	# UNITS	UNITS	UNIT PRICE	W/TAX	COST		
TRENCH SAND			2	2	625	138.9	TONS	\$8.35	\$8.96	\$1,243.80		
SERVICE SAND		15	2	3	5	25.0	TONS	\$8.35	\$8.96	\$223.88		
SERVICE BASE		15	2	1	5	8.3	TONS	\$9.40	\$10.08	\$84.01		
TRENCH SLURRY			2	2	625	92.6	YARDS	\$47.00	\$50.41	\$4,667.36		
COLD MIX			2.5	2	625	19.5	TONS	\$38.50	\$41.29	\$806.47		
SERVICE MIX		15	2.5	2	5	2.3	TONS	\$38.50	\$41.29	\$96.78		
ASPHALT			2.5	2	625	19.5	TONS	\$32.00	\$34.32	\$670.31		
SERVICE ASPHALT		15	2.5	2	5	2.3	TONS	\$32.00	\$34.32	\$80.44		
CONCRETE						18	SACKS	\$3.25	\$3.49	\$62.74		
C-900	6					625	FEET	\$2.25	\$2.41	\$1,508.20		
WIRE						1500	FEET	\$0.04	\$0.04	\$64.35		
SERVICE SADDLES	6					15	COUNT	\$35.00	\$37.54	\$563.06		
COPPER TUBING						840	FEET	\$1.58	\$1.69	\$1,423.42		
CORP STOPS						15	COUNT	\$16.50	\$17.70	\$265.44		
ANGLE STOPS						15	COUNT	\$14.00	\$15.02	\$225.23		
METER BOXES						15	COUNT	\$17.50	\$18.77	\$281.53		
BOX LID						15	COUNT	\$19.00	\$20.38	\$305.66		
G-5						4	COUNT	\$19.75	\$21.18	\$84.73		
G-5 LID						4	COUNT	\$14.00	\$15.02	\$60.06		
8" CAN MATERIAL						20	FEET	\$2.00	\$2.15	\$42.90		
GATE VALVES	2					2	COUNT	\$34.00	\$36.47	\$72.93		
GATE VALVES	6					1	COUNT	\$240.00	\$257.40	\$257.40		
CI ADAPTERS	6					2	COUNT	\$45.00	\$48.26	\$96.53		
NUT BOLT SETS	6					4	COUNT	\$6.00	\$6.44	\$25.74		
GASKETS	6					4	COUNT	\$2.00	\$2.15	\$8.58		
TAPPING SLEEVES	6					1	COUNT	\$325.00	\$348.56	\$348.56		
MISC.									\$0.00	\$500.00		
								TOTAL MATERIAL		\$14,070.12		

MATERIALS LIST

PHASE: 1

PROJECT: PEARSON

2002 PRICES

PRIMARY MAIN SIZE: 18

UNITS

SERVICES

6

#

WIDTH

DEPTH

LENGTH

UNITS

UNITS

UNIT PRICE

W/TAX

TOTAL COST

MATERIAL	SIZE	#	WIDTH	DEPTH	LENGTH	# UNITS	UNITS	UNIT PRICE	W/TAX	TOTAL COST
TRENCH SAND			2	2	1400	311.1	TONS	\$8.35	\$8.96	\$2,786.12
SERVICE SAND		24	2	2	5	26.7	TONS	\$8.35	\$8.96	\$238.81
SERVICE BASE		24	2	1	5	13.3	TONS	\$9.40	\$10.08	\$134.42
TRENCH SLURRY			2	2	1400	207.4	YARDS	\$47.00	\$50.41	\$10,454.89
COLD MIX			2	2	1400	35.0	TONS	\$38.50	\$41.29	\$1,445.19
SERVICE MIX		24	2	2	5	3.0	TONS	\$38.50	\$41.29	\$123.87
ASPHALT			2	2	1400	35.0	TONS	\$32.00	\$34.32	\$1,201.20
SERVICE ASPHALT		24	2	2	5	3.0	TONS	\$32.00	\$34.32	\$102.96
CONCRETE						1	U CART	\$100.00	\$107.25	\$107.25
C-900 PIPE	6					1400	FEET	\$2.25	\$2.41	\$3,378.38
WIRE						2200	FEET	\$0.04	\$0.04	\$94.38
SERVICE SADDLES	6					24	COUNT	\$35.00	\$37.54	\$900.90
COPPER TUBING						800	FEET	\$1.58	\$1.69	\$1,355.64
CORP STOPS						15	COUNT	\$16.50	\$17.70	\$265.44
ANGLE STOPS						15	COUNT	\$14.00	\$15.02	\$225.23
METER BOXES						22	COUNT	\$17.50	\$18.77	\$412.91
BOX LID						22	COUNT	\$19.00	\$20.38	\$448.31
G-5						4	COUNT	\$19.75	\$21.18	\$84.73
G-5 LID						4	COUNT	\$14.00	\$15.02	\$60.06
G-12						1	COUNT	\$80.00	\$85.80	\$85.80
G-12 LID						1	COUNT	\$65.00	\$69.71	\$69.71
8" CAN MATERIAL						25	FEET	\$2.00	\$2.15	\$53.63
GATE VALVES	2					10	COUNT	\$34.00	\$36.47	\$364.65
GATE VALVES	6					4	COUNT	\$240.00	\$257.40	\$1,029.60
CI TEES	6					1	COUNT	\$75.00	\$80.44	\$80.44
CI BENDS	6					1	COUNT	\$50.00	\$53.63	\$53.63
CI ADAPTERS	6					2	COUNT	\$45.00	\$48.26	\$96.53
M.J. RESTRAINTS	6					4	COUNT	\$31.00	\$33.25	\$132.99
NUT BOLT SETS	6					12	COUNT	\$6.00	\$6.44	\$77.22
GASKETS	6					12	COUNT	\$2.00	\$2.15	\$25.74
TAPPING SLEEVES	16					1	COUNT	\$700.00	\$750.75	\$750.75
TAPPING SLEEVES	18					1	COUNT	\$1,000.00	\$1,072.50	\$1,072.50
WELD FLANGES	6					1	COUNT	\$70.00	\$75.08	\$75.08
MISC.									\$0.00	\$2,500.00
TOTAL MATERIAL										\$30,288.93

MATERIALS LIST

PHASE: 1

PROJECT: STARK LANE

2002 PRICES

PRIMARY MAIN SIZE:		#		WIDTH		# SERVICES		DEPTH		LENGTH		# UNITS		UNITS		UNIT PRICE		W/TAX		TOTAL COST	
MATERIAL	SIZE	#																			
TRENCH SAND				2	2	2		2		1450		322.2		TONS		\$8.35		\$8.96		\$2,885.62	
SERVICE SAND		21		2	2	3		3		5		35.0		TONS		\$8.35		\$8.96		\$313.44	
SERVICE BASE		21		2	2	1		1		5		11.7		TONS		\$9.40		\$10.08		\$117.62	
TRENCH SLURRY				2	2	2		2		1450		214.8		YARDS		\$47.00		\$50.41		\$10,828.28	
COLD MIX				2.5	2	2		2		1450		45.3		TONS		\$38.50		\$41.29		\$1,871.01	
SERVICE MIX		21		2.5	2	2		2		5		3.3		TONS		\$38.50		\$41.29		\$135.49	
ASPHALT				2.5	2	2		2		1450		45.3		TONS		\$32.00		\$34.32		\$1,555.13	
SERVICE ASPHALT		21		2.5	2	2		2		5		3.3		TONS		\$32.00		\$34.32		\$112.61	
C-900	8											1450		FEET		\$6.25		\$6.70		\$9,719.53	
WIRE												2200		FEET		\$0.04		\$0.04		\$94.38	
SERVICE SADDLES	8											21		COUNT		\$42.00		\$45.05		\$945.95	
COPPER TUBING												600		FEET		\$1.58		\$1.69		\$1,016.73	
CORP STOPS												21		COUNT		\$16.50		\$17.70		\$371.62	
ANGLE STOPS												21		COUNT		\$14.00		\$15.02		\$315.32	
METER BOXES												21		COUNT		\$17.50		\$18.77		\$394.14	
BOX LID												21		COUNT		\$19.00		\$20.38		\$427.93	
G-5												3		COUNT		\$19.75		\$21.18		\$63.55	
G-5 LID												3		COUNT		\$14.00		\$15.02		\$45.05	
G-12												1		COUNT		\$80.00		\$85.80		\$85.80	
G-12 LID												1		COUNT		\$65.00		\$69.71		\$69.71	
8" CAN MATERIAL												20		FEET		\$2.00		\$2.15		\$42.90	
GATE VALVES	2											2		COUNT		\$34.00		\$36.47		\$72.93	
GATE VALVES	6											1		COUNT		\$240.00		\$257.40		\$257.40	
GATE VALVES	8											2		COUNT		\$400.00		\$429.00		\$858.00	
CI TEES	8											1		COUNT		\$125.00		\$134.06		\$134.06	
CI TEES	12											1		COUNT		\$340.00		\$364.65		\$364.65	
CI BENDS	6											2		COUNT		\$50.00		\$53.63		\$107.25	
CI ADAPTERS	8											2		COUNT		\$60.00		\$64.35		\$128.70	
NUT BOLT SETS	8											7		COUNT		\$6.00		\$6.44		\$45.05	
NUT BOLT SETS	12											2		COUNT		\$7.00		\$7.51		\$15.02	
GASKETS	8											7		COUNT		\$3.25		\$3.49		\$24.40	
GASKETS	12											2		COUNT		\$4.50		\$4.83		\$9.65	
TAPPING SLEEVES	6											1		COUNT		\$325.00		\$348.56		\$348.56	
BLIND FLANGES	12											2		COUNT		\$115.00		\$123.34		\$246.68	
MISC.																		\$0.00		\$1,500.00	
TOTAL MATERIAL																					\$35,524.13

MATERIALS LIST

PHASE: 2

PROJECT: PECK LANE

2002 PRICES

PRIMARY MAIN SIZE:		#		# SERVICES		# UNITS		UNITS		UNIT PRICE		W/TAX		TOTAL COST	
MATERIAL	SIZE	#	WIDTH	DEPTH	LENGTH	# UNITS	TONS	UNIT PRICE	W/TAX	UNIT PRICE	W/TAX	UNIT PRICE	W/TAX	UNIT PRICE	W/TAX
TRENCH SAND		18	2	2	1800	400.0	TONS	\$8.35	\$8.96	\$8.35	\$8.96	\$8.35	\$8.96	\$3,582.15	\$3,582.15
SERVICE SAND		18	2	3	5	30.0	TONS	\$8.35	\$8.96	\$8.35	\$8.96	\$8.35	\$8.96	\$268.66	\$268.66
TRENCH BASE			2	1	500	55.6	TONS	\$9.40	\$10.08	\$9.40	\$10.08	\$9.40	\$10.08	\$560.08	\$560.08
SERVICE BASE		18	2	1	5	10.0	TONS	\$9.40	\$10.08	\$9.40	\$10.08	\$9.40	\$10.08	\$100.82	\$100.82
TRENCH SLURRY			2	2	1300	192.6	YARDS	\$47.00	\$50.41	\$47.00	\$50.41	\$47.00	\$50.41	\$9,708.11	\$9,708.11
COLD MIX			2.5	2	1800	56.3	TONS	\$38.50	\$41.29	\$38.50	\$41.29	\$38.50	\$41.29	\$2,322.63	\$2,322.63
SERVICE MIX		18	2.5	2	5	2.8	TONS	\$38.50	\$41.29	\$38.50	\$41.29	\$38.50	\$41.29	\$116.13	\$116.13
ASPHALT			2.5	2	1800	56.3	TONS	\$32.00	\$34.32	\$32.00	\$34.32	\$32.00	\$34.32	\$1,930.50	\$1,930.50
SERVICE ASPHALT		18	2.5	2	5	2.8	TONS	\$32.00	\$34.32	\$32.00	\$34.32	\$32.00	\$34.32	\$96.53	\$96.53
C-900	6					1800	FEET	\$2.25	\$2.41	\$2.25	\$2.41	\$2.25	\$2.41	\$4,343.63	\$4,343.63
WIRE						2200	FEET	\$0.04	\$0.04	\$0.04	\$0.04	\$0.04	\$0.04	\$94.38	\$94.38
SERVICE SADDLES	6					18	COUNT	\$35.00	\$37.54	\$35.00	\$37.54	\$35.00	\$37.54	\$675.68	\$675.68
COPPER TUBING						500	FEET	\$1.58	\$1.69	\$1.58	\$1.69	\$1.58	\$1.69	\$847.28	\$847.28
CORP STOPS						18	COUNT	\$16.50	\$17.70	\$16.50	\$17.70	\$16.50	\$17.70	\$318.53	\$318.53
ANGLE STOPS						18	COUNT	\$14.00	\$15.02	\$14.00	\$15.02	\$14.00	\$15.02	\$270.27	\$270.27
METER BOXES						18	COUNT	\$17.50	\$18.77	\$17.50	\$18.77	\$17.50	\$18.77	\$337.84	\$337.84
BOX LID						18	COUNT	\$19.00	\$20.38	\$19.00	\$20.38	\$19.00	\$20.38	\$366.80	\$366.80
G-5						4	COUNT	\$19.75	\$21.18	\$19.75	\$21.18	\$19.75	\$21.18	\$84.73	\$84.73
G-5 LID						4	COUNT	\$14.00	\$15.02	\$14.00	\$15.02	\$14.00	\$15.02	\$60.06	\$60.06
G-12						1	COUNT	\$80.00	\$85.80	\$80.00	\$85.80	\$80.00	\$85.80	\$85.80	\$85.80
G-12 LID						1	COUNT	\$65.00	\$69.71	\$65.00	\$69.71	\$65.00	\$69.71	\$69.71	\$69.71
8" CAN MATERIAL						20	FEET	\$2.00	\$2.15	\$2.00	\$2.15	\$2.00	\$2.15	\$42.90	\$42.90
GATE VALVES	2					2	COUNT	\$34.00	\$36.47	\$34.00	\$36.47	\$34.00	\$36.47	\$72.93	\$72.93
GATE VALVES	6					4	COUNT	\$240.00	\$257.40	\$240.00	\$257.40	\$240.00	\$257.40	\$1,029.60	\$1,029.60
CI TEES	6					2	COUNT	\$75.00	\$80.44	\$75.00	\$80.44	\$75.00	\$80.44	\$160.88	\$160.88
CI BENDS	6					8	COUNT	\$50.00	\$53.63	\$50.00	\$53.63	\$50.00	\$53.63	\$429.00	\$429.00
CI ADAPTERS	6					2	COUNT	\$45.00	\$48.26	\$45.00	\$48.26	\$45.00	\$48.26	\$96.53	\$96.53
NUT BOLT SETS	6					6	COUNT	\$6.00	\$6.44	\$6.00	\$6.44	\$6.00	\$6.44	\$38.61	\$38.61
GASKETS	6					6	COUNT	\$2.00	\$2.15	\$2.00	\$2.15	\$2.00	\$2.15	\$12.87	\$12.87
TAPPING SLEEVES	12					1	COUNT	\$450.00	\$482.63	\$450.00	\$482.63	\$450.00	\$482.63	\$482.63	\$482.63
BLIND FLANGES	12					2	COUNT	\$115.00	\$123.34	\$115.00	\$123.34	\$115.00	\$123.34	\$246.68	\$246.68
MISC.									\$0.00		\$0.00		\$0.00	\$1,000.00	\$1,000.00
TOTAL MATERIAL														\$29,852.91	\$29,852.91

2

PHASE:

PROJECT: PENTZ ROAD

PRIMARY MAIN SIZE:

12

SERVICES

32

2002 PRICES

TOTAL

[illegible]

MATERIALS LIST

PHASE: 2

PROJECT: WAGGONER

2002 PRICES

PRIMARY MAIN SIZE:		#		# SERVICES		LENGTH		# UNITS		UNITS		UNIT PRICE		W/TAX		TOTAL COST	
MATERIAL	SIZE	#	WIDTH	DEPTH	LENGTH	# UNITS	TONS	YARDS	TONS	UNIT PRICE	W/TAX	UNIT PRICE	W/TAX	UNIT PRICE	W/TAX	TOTAL COST	TOTAL COST
TRENCH SAND				2	2	333.3	1500		63.3	\$8.35	\$8.96	\$8.35	\$8.96	\$8.35	\$8.96	\$2,985.13	\$2,985.13
SERVICE SAND		38		2	3	63.3	5		21.1	\$8.35	\$8.96	\$8.35	\$8.96	\$8.35	\$8.96	\$567.17	\$567.17
SERVICE BASE		38		2	1	21.1	5		222.2	\$9.40	\$10.08	\$9.40	\$10.08	\$9.40	\$10.08	\$212.83	\$212.83
TRENCH SLURRY				2	2	222.2	1500		46.9	\$47.00	\$50.41	\$47.00	\$50.41	\$47.00	\$50.41	\$11,201.67	\$11,201.67
COLD MIX				2.5	2	46.9	1500		5.9	\$38.50	\$41.29	\$38.50	\$41.29	\$38.50	\$41.29	\$1,935.53	\$1,935.53
SERVICE MIX		38		2.5	2	5.9	5		46.9	\$38.50	\$41.29	\$38.50	\$41.29	\$38.50	\$41.29	\$245.17	\$245.17
ASPHALT				2.5	2	46.9	1500		5.9	\$32.00	\$34.32	\$32.00	\$34.32	\$32.00	\$34.32	\$1,608.75	\$1,608.75
SERVICE ASPHALT		38		2.5	2	5.9	5		25	\$32.00	\$34.32	\$32.00	\$34.32	\$32.00	\$34.32	\$203.78	\$203.78
CONCRETE									1500	\$3.25	\$3.49	\$3.25	\$3.49	\$3.25	\$3.49	\$87.14	\$87.14
C-900	6								2600	\$2.25	\$2.41	\$2.25	\$2.41	\$2.25	\$2.41	\$3,619.69	\$3,619.69
WIRE									38	\$0.04	\$0.04	\$0.04	\$0.04	\$0.04	\$0.04	\$111.54	\$111.54
SERVICE SADDLES	6								1080	\$35.00	\$37.54	\$35.00	\$37.54	\$35.00	\$37.54	\$1,426.43	\$1,426.43
COPPER TUBING									38	\$1.58	\$1.69	\$1.58	\$1.69	\$1.58	\$1.69	\$1,830.11	\$1,830.11
CORP STOPS									38	\$16.50	\$17.70	\$16.50	\$17.70	\$16.50	\$17.70	\$672.46	\$672.46
ANGLE STOPS									38	\$14.00	\$15.02	\$14.00	\$15.02	\$14.00	\$15.02	\$570.57	\$570.57
METER BOXES									38	\$17.50	\$18.77	\$17.50	\$18.77	\$17.50	\$18.77	\$713.21	\$713.21
BOX LID									38	\$19.00	\$20.38	\$19.00	\$20.38	\$19.00	\$20.38	\$774.35	\$774.35
G-5									3	\$19.75	\$21.18	\$19.75	\$21.18	\$19.75	\$21.18	\$63.55	\$63.55
G-5 LID									3	\$14.00	\$15.02	\$14.00	\$15.02	\$14.00	\$15.02	\$45.05	\$45.05
G-12									3	\$80.00	\$85.80	\$80.00	\$85.80	\$80.00	\$85.80	\$257.40	\$257.40
G-12 LID									3	\$65.00	\$69.71	\$65.00	\$69.71	\$65.00	\$69.71	\$209.14	\$209.14
8" CAN MATERIAL									20	\$2.00	\$2.15	\$2.00	\$2.15	\$2.00	\$2.15	\$42.90	\$42.90
GATE VALVES	2								2	\$34.00	\$36.47	\$34.00	\$36.47	\$34.00	\$36.47	\$72.93	\$72.93
GATE VALVES	6								2	\$240.00	\$257.40	\$240.00	\$257.40	\$240.00	\$257.40	\$514.80	\$514.80
CI TEES	6								2	\$75.00	\$80.44	\$75.00	\$80.44	\$75.00	\$80.44	\$160.88	\$160.88
CI BENDS	6								4	\$50.00	\$53.63	\$50.00	\$53.63	\$50.00	\$53.63	\$214.50	\$214.50
CI ADAPTERS	6								1	\$45.00	\$48.26	\$45.00	\$48.26	\$45.00	\$48.26	\$48.26	\$48.26
NUT BOLT SETS	6								6	\$6.00	\$6.44	\$6.00	\$6.44	\$6.00	\$6.44	\$38.61	\$38.61
GASKETS	6								6	\$2.00	\$2.15	\$2.00	\$2.15	\$2.00	\$2.15	\$12.87	\$12.87
TAPPING SLEEVES	6								1	\$325.00	\$348.56	\$325.00	\$348.56	\$325.00	\$348.56	\$348.56	\$348.56
MISC.																\$1,000.00	\$1,000.00
TOTAL MATERIAL																\$31,794.95	\$31,794.95

MATERIALS LIST

PHASE: 3

PROJECT: AZALEA

2002 PRICES

PRIMARY MAIN SIZE:			6		# SERVICES			23		TOTAL	
MATERIAL	SIZE	#	WIDTH	DEPTH	LENGTH	# UNITS	UNITS	UNIT PRICE	W/TAX	COST	
TRENCH SAND			2	2	1900	422.2 TONS		\$8.35	\$8.96	\$3,781.16	
SERVICE SAND		23	2	3	5	38.3 TONS		\$8.35	\$8.96	\$343.29	
SERVICE BASE		23	2	1	5	12.8 TONS		\$9.40	\$10.08	\$128.82	
TRENCH SLURRY			2	2	1900	281.5 YARDS		\$47.00	\$50.41	\$14,188.78	
COLD MIX			2.5	2	1900	59.4 TONS		\$38.50	\$41.29	\$2,451.67	
SERVICE MIX		23	2.5	2	5	3.6 TONS		\$38.50	\$41.29	\$148.39	
ASPHALT			2.5	2	1900	59.4 TONS		\$32.00	\$34.32	\$2,037.75	
SERVICE ASPHALT		23	2.5	2	5	3.6 TONS		\$32.00	\$34.32	\$123.34	
C-900	6					1900 FEET		\$2.25	\$2.41	\$4,584.94	
WIRE						2560 FEET		\$0.04	\$0.04	\$109.82	
SERVICE SADDLES	6					23 COUNT		\$35.00	\$37.54	\$863.36	
COPPER TUBING						660 FEET		\$1.58	\$1.69	\$1,118.40	
CORP STOPS						23 COUNT		\$16.50	\$17.70	\$407.01	
ANGLE STOPS						23 COUNT		\$14.00	\$15.02	\$345.35	
METER BOXES						23 COUNT		\$17.50	\$18.77	\$431.68	
BOX LID						23 COUNT		\$19.00	\$20.38	\$468.68	
G-5						4 COUNT		\$19.75	\$21.18	\$84.73	
G-5 LID						4 COUNT		\$14.00	\$15.02	\$60.06	
G-12						1 COUNT		\$80.00	\$85.80	\$85.80	
G-12 LID						1 COUNT		\$65.00	\$69.71	\$69.71	
8" CAN MATERIAL						20 FEET		\$2.00	\$2.15	\$42.90	
GATE VALVES	2					2 COUNT		\$34.00	\$36.47	\$72.93	
GATE VALVES	4					1 COUNT		\$200.00	\$214.50	\$214.50	
GATE VALVES	6					2 COUNT		\$240.00	\$257.40	\$514.80	
CI TEES	6					1 COUNT		\$75.00	\$80.44	\$80.44	
CI TEES	12					1 COUNT		\$340.00	\$364.65	\$364.65	
CI BENDS	6					2 COUNT		\$50.00	\$53.63	\$107.25	
CI ADAPTERS	6					3 COUNT		\$45.00	\$48.26	\$144.79	
NUT BOLT SETS	6					6 COUNT		\$6.00	\$6.44	\$38.61	
NUT BOLT SETS	12					2 COUNT		\$7.00	\$7.51	\$15.02	
GASKETS	6					6 COUNT		\$2.00	\$2.15	\$12.87	
GASKETS	12					2 COUNT		\$4.50	\$4.83	\$9.65	
BLIND FLANGES	12					2 COUNT		\$115.00	\$123.34	\$246.68	
MISC.									\$0.00	\$1,000.00	
TOTAL MATERIAL										\$34,697.82	

MATERIALS LIST

PHASE: 3

PROJECT: CENTRAL PARK

PRIMARY MAIN SIZE: 6

SERVICES 40

2002 PRICES

MATERIAL	SIZE	#	WIDTH	DEPTH	LENGTH	# UNITS	UNITS	UNIT PRICE	W/TAX	TOTAL COST
TRENCH SAND				2	3	2500	833.3 TONS	\$8.35	\$8.96	\$7,462.81
SERVICE SAND		45		2	3	5	75.0 TONS	\$8.35	\$8.96	\$671.65
SERVICE BASE		45		2	1	5	25.0 TONS	\$9.40	\$10.08	\$252.04
TRENCH SLURRY				2	2	2500	370.4 YARDS	\$47.00	\$50.41	\$18,669.44
COLD MIX				2	2	2500	62.5 TONS	\$38.50	\$41.29	\$2,580.70
SERVICE MIX		45		2	2	5	5.6 TONS	\$38.50	\$41.29	\$232.26
ASPHALT				2	2	2500	62.5 TONS	\$32.00	\$34.32	\$2,145.00
SERVICE ASPHALT		45		2	2	5	5.6 TONS	\$32.00	\$34.32	\$193.05
CONCRETE							3 U CART	\$100.00	\$107.25	\$321.75
C-900 PIPE	6						2500 FEET	\$2.25	\$2.41	\$6,032.81
WIRE							3700 FEET	\$0.04	\$0.04	\$158.73
SERVICE SADDLES	6						45 COUNT	\$35.00	\$37.54	\$1,689.19
COPPER TUBING							1200 FEET	\$1.58	\$1.69	\$2,033.46
CORP STOPS							40 COUNT	\$16.50	\$17.70	\$707.85
ANGLE STOPS							40 COUNT	\$14.00	\$15.02	\$600.60
METER BOXES							40 COUNT	\$17.50	\$18.77	\$750.75
BOX LID							40 COUNT	\$19.00	\$20.38	\$815.10
G-5							3 COUNT	\$19.75	\$21.18	\$63.55
G-5 LID							3 COUNT	\$14.00	\$15.02	\$45.05
G-12							3 COUNT	\$80.00	\$85.80	\$257.40
G-12 LID							3 COUNT	\$65.00	\$69.71	\$209.14
8" CAN MATERIAL							25 FEET	\$2.00	\$2.15	\$53.63
GATE VALVES	2						3 COUNT	\$34.00	\$36.47	\$109.40
GATE VALVES	6						3 COUNT	\$240.00	\$257.40	\$772.20
CI TEES	6						2 COUNT	\$75.00	\$80.44	\$160.88
CI TEES	8						1 COUNT	\$125.00	\$134.06	\$134.06
CI BENDS	6						3 COUNT	\$50.00	\$53.63	\$160.88
M.J. RESTRAINTS	6						4 COUNT	\$31.00	\$33.25	\$132.99
C.I. REDUCERS	4 X 6						1 COUNT	\$87.00	\$93.31	\$93.31
NUT BOLT SETS	6						12 COUNT	\$6.00	\$6.44	\$77.22
GASKETS	6						12 COUNT	\$2.00	\$2.15	\$25.74
TAPPING SLEEVES	6						1 COUNT	\$325.00	\$348.56	\$348.56
TAPPING SLEEVES	12						1 COUNT	\$450.00	\$482.63	\$482.63
TAP CAPS	6						1 COUNT	\$22.00	\$23.60	\$23.60
MISC.									\$0.00	\$2,500.00
TOTAL MATERIAL										\$50,967.40

MATERIALS LIST

PHASE: 3
PROJECT: CINDY

PRIMARY MAIN SIZE:		6		# SERVICES		18		TOTAL	
MATERIAL	SIZE	#	WIDTH	DEPTH	LENGTH	# UNITS	UNITS	UNIT PRICE	W/TAX
TRENCH SAND			2	2	350	77.8 TONS		\$8.35	\$8.96
SERVICE SAND		1	2	2	5	1.1 TONS		\$8.35	\$8.96
TRENCH BASE			2	1	350	38.9 TONS		\$9.40	\$10.08
SERVICE BASE		1	2	1	5	0.6 TONS		\$9.40	\$10.08
TRENCH SLURRY			2	2	50	7.4 YARDS		\$47.00	\$50.41
COLD MIX			2	2	50	1.3 TONS		\$38.50	\$41.29
ASPHALT			2	2	50	1.3 TONS		\$32.00	\$34.32
CONCRETE						1 U CART		\$100.00	\$107.25
C-900 PIPE	6					350 FEET		\$2.25	\$2.41
WIRE						400 FEET		\$0.04	\$0.04
SERVICE SADDLES	6					1 COUNT		\$35.00	\$37.54
COPPER TUBING						50 FEET		\$1.58	\$1.69
CORP STOPS						1 COUNT		\$16.50	\$17.70
ANGLE STOPS						1 COUNT		\$14.00	\$15.02
METER BOXES						1 COUNT		\$17.50	\$18.77
BOX LID						1 COUNT		\$19.00	\$20.38
G-5						2 COUNT		\$19.75	\$21.18
G-5 LID						2 COUNT		\$14.00	\$15.02
G-12						1 COUNT		\$80.00	\$85.80
G-12 LID						1 COUNT		\$65.00	\$69.71
8" CAN MATERIAL						10 FEET		\$2.00	\$2.15
GATE VALVES	4					1 COUNT		\$200.00	\$214.50
GATE VALVES	6					2 COUNT		\$240.00	\$257.40
GATE VALVES	12					2 COUNT		\$725.00	\$777.56
CI TEES	6					1 COUNT		\$75.00	\$80.44
CI TEES	12					1 COUNT		\$340.00	\$364.65
CI ADAPTERS	6					1 COUNT		\$45.00	\$48.26
C.I. REDUCERS	4 X 6					1 COUNT		\$87.00	\$93.31
NUT BOLT SETS	6					6 COUNT		\$6.00	\$6.44
NUT BOLT SETS	12					2 COUNT		\$7.00	\$7.51
GASKETS	6					6 COUNT		\$2.00	\$2.15
GASKETS	12					2 COUNT		\$4.50	\$4.83
WELD FLANGES	4					1 COUNT		\$60.00	\$64.35
MISC.									\$0.00
TOTAL MATERIAL									\$6,496.10

MATERIAL COSTS

PHASE: 3

PROJECT: COPELAND

2002 PRICES

PRIMARY MAIN SIZE:										18		TOTAL	
MATERIAL	SIZE	#	WIDTH	#	DEPTH	LENGTH	# UNITS	UNITS	UNIT PRICE	W/TAX	COST		
TRENCH SAND			28	2	2	1400	311.1	TONS	\$8.35	\$8.96	\$2,786.12		
SERVICE SAND			28	2	2	5	31.1	TONS	\$8.35	\$8.96	\$278.61		
SERVICE BASE			28	2	1	5	15.6	TONS	\$9.40	\$10.08	\$156.82		
TRENCH SLURRY				2	2	1400	207.4	YARDS	\$47.00	\$50.41	\$10,454.89		
COLD MIX				2	2	1400	35.0	TONS	\$38.50	\$41.29	\$1,445.19		
SERVICE MIX			28	2	2	5	3.5	TONS	\$38.50	\$41.29	\$144.52		
ASPHALT				2	2	1400	35.0	TONS	\$32.00	\$34.32	\$1,201.20		
SERVICE ASPHALT			28	2	2	5	3.5	TONS	\$32.00	\$34.32	\$120.12		
CONCRETE								2 U CART	\$100.00	\$107.25	\$214.50		
C-900 PIPE		6					1400	FEET	\$2.25	\$2.41	\$3,378.38		
WIRE							2200	FEET	\$0.04	\$0.04	\$94.38		
SERVICE SADDLES		6					28	COUNT	\$35.00	\$37.54	\$1,051.05		
COPPER TUBING							700	FEET	\$1.58	\$1.69	\$1,186.19		
CORP STOPS							28	COUNT	\$16.50	\$17.70	\$495.50		
ANGLE STOPS							28	COUNT	\$14.00	\$15.02	\$420.42		
METER BOXES							28	COUNT	\$17.50	\$18.77	\$525.53		
BOX LID							28	COUNT	\$19.00	\$20.38	\$570.57		
G-5							8	COUNT	\$19.75	\$21.18	\$169.46		
G-5 LID							8	COUNT	\$14.00	\$15.02	\$120.12		
8" CAN MATERIAL							25	FEET	\$2.00	\$2.15	\$53.63		
GATE VALVES	2						2	COUNT	\$34.00	\$36.47	\$72.93		
GATE VALVES	4						1	COUNT	\$200.00	\$214.50	\$214.50		
GATE VALVES	6						3	COUNT	\$240.00	\$257.40	\$772.20		
GATE VALVES	8						4	COUNT	\$400.00	\$429.00	\$1,716.00		
CI TEES	6						2	COUNT	\$75.00	\$80.44	\$160.88		
CI TEES	8						2	COUNT	\$125.00	\$134.06	\$268.13		
CI BENDS	6						2	COUNT	\$50.00	\$53.63	\$107.25		
CI ADAPTERS	6						2	COUNT	\$45.00	\$48.26	\$96.53		
M.J. RESTRAINTS	6						4	COUNT	\$31.00	\$33.25	\$132.99		
NUT BOLT SETS	6						12	COUNT	\$6.00	\$6.44	\$77.22		
GASKETS	6						12	COUNT	\$2.00	\$2.15	\$25.74		
WELD FLANGES	4						1	COUNT	\$60.00	\$64.35	\$64.35		
WELD FLANGES	6						1	COUNT	\$70.00	\$75.08	\$75.08		
MISC.									TOTAL MATERIAL		\$0.00	\$2,500.00	\$31,150.95

MATERIALS LIST

PHASE: 3

PROJECT: CRESTVIEW

2002 PRICES

PRIMARY MAIN SIZE:		#		# SERVICES		LENGTH		# UNITS		UNITS		UNIT PRICE		W/TAX		TOTAL COST	
MATERIAL	SIZE	#	WIDTH	DEPTH	LENGTH	# UNITS	TONS	YARDS	TONS	UNIT PRICE	W/TAX	UNIT PRICE	W/TAX	UNIT PRICE	W/TAX	TOTAL COST	TOTAL COST
TRENCH SAND			12	2	3	1200	400.0		TONS	\$8.35	\$8.96	\$8.35	\$8.96	\$8.35	\$8.96	\$3,582.15	\$3,582.15
SERVICE SAND			12	2	3	5	20.0		TONS	\$8.35	\$8.96	\$8.35	\$8.96	\$8.35	\$8.96	\$179.11	\$179.11
SERVICE BASE			12	2	1	5	6.7		TONS	\$9.40	\$10.08	\$9.40	\$10.08	\$9.40	\$10.08	\$67.21	\$67.21
TRENCH SLURRY				2	2	1200	177.8		YARDS	\$47.00	\$50.41	\$47.00	\$50.41	\$47.00	\$50.41	\$8,961.33	\$8,961.33
COLD MIX				2.5	2	1200	37.5		TONS	\$38.50	\$41.29	\$38.50	\$41.29	\$38.50	\$41.29	\$1,548.42	\$1,548.42
SERVICE MIX		12		2.5	2	5	1.9		TONS	\$38.50	\$41.29	\$38.50	\$41.29	\$38.50	\$41.29	\$77.42	\$77.42
ASPHALT				2.5	2	1200	37.5		TONS	\$32.00	\$34.32	\$32.00	\$34.32	\$32.00	\$34.32	\$1,287.00	\$1,287.00
SERVICE ASPHALT		12		2.5	2	5	1.9		TONS	\$32.00	\$34.32	\$32.00	\$34.32	\$32.00	\$34.32	\$64.35	\$64.35
CONCRETE							21		SACKS	\$3.25	\$3.49	\$3.25	\$3.49	\$3.25	\$3.49	\$73.20	\$73.20
C-900	6						50		FEET	\$2.25	\$2.41	\$2.25	\$2.41	\$2.25	\$2.41	\$120.66	\$120.66
C-900	8						1150		FEET	\$6.25	\$6.70	\$6.25	\$6.70	\$6.25	\$6.70	\$7,708.59	\$7,708.59
WIRE							1500		FEET	\$0.04	\$0.04	\$0.04	\$0.04	\$0.04	\$0.04	\$64.35	\$64.35
SERVICE SADDLES	8						12		COUNT	\$42.00	\$45.05	\$42.00	\$45.05	\$42.00	\$45.05	\$540.54	\$540.54
COPPER TUBING							300		FEET	\$1.58	\$1.69	\$1.58	\$1.69	\$1.58	\$1.69	\$508.37	\$508.37
CORP STOPS							12		COUNT	\$16.50	\$17.70	\$16.50	\$17.70	\$16.50	\$17.70	\$212.36	\$212.36
ANGLE STOPS							12		COUNT	\$14.00	\$15.02	\$14.00	\$15.02	\$14.00	\$15.02	\$180.18	\$180.18
METER BOXES							12		COUNT	\$17.50	\$18.77	\$17.50	\$18.77	\$17.50	\$18.77	\$225.23	\$225.23
BOX LID							12		COUNT	\$19.00	\$20.38	\$19.00	\$20.38	\$19.00	\$20.38	\$244.53	\$244.53
G-5							7		COUNT	\$19.75	\$21.18	\$19.75	\$21.18	\$19.75	\$21.18	\$148.27	\$148.27
G-5 LID							7		COUNT	\$14.00	\$15.02	\$14.00	\$15.02	\$14.00	\$15.02	\$105.11	\$105.11
G-12							1		COUNT	\$80.00	\$85.80	\$80.00	\$85.80	\$80.00	\$85.80	\$85.80	\$85.80
G-12 LID							1		COUNT	\$65.00	\$69.71	\$65.00	\$69.71	\$65.00	\$69.71	\$69.71	\$69.71
8" CAN MATERIAL							30		FEET	\$2.00	\$2.15	\$2.00	\$2.15	\$2.00	\$2.15	\$64.35	\$64.35
GATE VALVES	2						3		COUNT	\$34.00	\$36.47	\$34.00	\$36.47	\$34.00	\$36.47	\$109.40	\$109.40
GATE VALVES	6						1		COUNT	\$240.00	\$257.40	\$240.00	\$257.40	\$240.00	\$257.40	\$257.40	\$257.40
GATE VALVES	8						2		COUNT	\$400.00	\$429.00	\$400.00	\$429.00	\$400.00	\$429.00	\$858.00	\$858.00
CI TEES	8						1		COUNT	\$125.00	\$134.06	\$125.00	\$134.06	\$125.00	\$134.06	\$134.06	\$134.06
CI BENDS	8						4		COUNT	\$75.00	\$80.44	\$75.00	\$80.44	\$75.00	\$80.44	\$321.75	\$321.75
CI ADAPTERS	8						2		COUNT	\$60.00	\$64.35	\$60.00	\$64.35	\$60.00	\$64.35	\$128.70	\$128.70
NUT BOLT SETS	6						4		COUNT	\$6.00	\$6.44	\$6.00	\$6.44	\$6.00	\$6.44	\$25.74	\$25.74
GASKETS	6						4		COUNT	\$2.00	\$2.15	\$2.00	\$2.15	\$2.00	\$2.15	\$8.58	\$8.58
TAPPING SLEEVES	8						2		COUNT	\$375.00	\$402.19	\$375.00	\$402.19	\$375.00	\$402.19	\$804.38	\$804.38
MISC.																\$1,000.00	\$1,000.00
TOTAL MATERIAL																\$29,766.23	\$29,766.23

MATERIALS LIST

PHASE: 3

PROJECT: HAYES

2002 PRICES

PRIMARY MAIN SIZE: 18										TOTAL		
MATERIAL	SIZE	#	WIDTH	# SERVICES	DEPTH	LENGTH	# UNITS	UNITS	UNIT PRICE	W/TAX	COST	
TRENCH SAND			2	2	2	450	100.0	TONS	\$8.35	\$8.96	\$895.54	
SERVICE SAND		8	2	2	2	5	8.9	TONS	\$8.35	\$8.96	\$79.60	
SERVICE BASE		8	2	2	1	5	4.4	TONS	\$9.40	\$10.08	\$44.81	
TRENCH SLURRY			2	2	2	450	66.7	YARDS	\$47.00	\$50.41	\$3,360.50	
COLD MIX			2	2	2	450	11.3	TONS	\$38.50	\$41.29	\$464.53	
SERVICE MIX		8	2	2	2	5	1.0	TONS	\$38.50	\$41.29	\$41.29	
ASPHALT			2	2	2	450	11.3	TONS	\$32.00	\$34.32	\$386.10	
SERVICE ASPHALT		8	2	2	2	5	1.0	TONS	\$32.00	\$34.32	\$34.32	
CONCRETE							7	U CART	\$100.00	\$107.25	\$750.75	
C-900 PIPE	6						450	FEET	\$2.25	\$2.41	\$1,085.91	
WIRE							950	FEET	\$0.04	\$0.04	\$40.76	
SERVICE SADDLES	6						8	COUNT	\$35.00	\$37.54	\$300.30	
COPPER TUBING							200	FEET	\$1.58	\$1.69	\$338.91	
CORP STOPS							8	COUNT	\$16.50	\$17.70	\$141.57	
ANGLE STOPS							8	COUNT	\$14.00	\$15.02	\$120.12	
METER BOXES							8	COUNT	\$17.50	\$18.77	\$150.15	
BOX LID							8	COUNT	\$19.00	\$20.38	\$163.02	
G-5							2	COUNT	\$19.75	\$21.18	\$42.36	
G-5 LID							2	COUNT	\$14.00	\$15.02	\$30.03	
G-12							1	COUNT	\$80.00	\$85.80	\$85.80	
G-12 LID							1	COUNT	\$65.00	\$69.71	\$69.71	
8" CAN MATERIAL							10	FEET	\$2.00	\$2.15	\$21.45	
GATE VALVES	2						1	COUNT	\$34.00	\$36.47	\$36.47	
GATE VALVES	4						1	COUNT	\$200.00	\$214.50	\$214.50	
GATE VALVES	6						1	COUNT	\$240.00	\$257.40	\$257.40	
CI TEES	6						1	COUNT	\$75.00	\$80.44	\$80.44	
CI BENDS	6						1	COUNT	\$50.00	\$53.63	\$53.63	
M.J. RESTRAINTS	6						1	COUNT	\$31.00	\$33.25	\$33.25	
NUT BOLT SETS	6						4	COUNT	\$6.00	\$6.44	\$25.74	
GASKETS	6						4	COUNT	\$2.00	\$2.15	\$8.58	
FLANGES	6						1	COUNT	\$45.00	\$48.26	\$48.26	
WELD FLANGES	4						1	COUNT	\$60.00	\$64.35	\$64.35	
TAP CAPS	6						1	COUNT	\$22.00	\$23.60	\$23.60	
MISC.										\$0.00	\$500.00	
TOTAL MATERIAL											\$9,993.73	

MATERIALS LIST

PHASE: 3

PROJECT: LANCASTER

PRIMARY MAIN SIZE: 8

SERVICES

UNITS

1

MATERIAL	SIZE	#	WIDTH	DEPTH	LENGTH	# UNITS	UNITS	UNIT PRICE	W/TAX	TOTAL COST
TRENCH SAND				2	350	77.8 TONS		\$8.35	\$8.96	\$696.53
SERVICE SAND		1	2	2	5	1.1 TONS		\$8.35	\$8.96	\$9.95
SERVICE BASE		1	2	1	5	0.6 TONS		\$9.40	\$10.08	\$5.60
TRENCH SLURRY			2	2	350	51.9 YARDS		\$47.00	\$50.41	\$2,613.72
COLD MIX			2	2	350	8.8 TONS		\$38.50	\$41.29	\$361.30
SERVICE MIX		1	2	2	5	0.1 TONS		\$38.50	\$41.29	\$5.16
ASPHALT			2	2	350	8.8 TONS		\$32.00	\$34.32	\$300.30
SERVICE ASPHALT		1	2	2	5	0.1 TONS		\$32.00	\$34.32	\$4.29
CONCRETE						1 U CART		\$100.00	\$107.25	\$107.25
C-900 PIPE	8					350 FEET		\$6.25	\$6.70	\$2,346.09
C-900 COUPLERS	8					2 COUNT		\$47.00	\$50.41	\$100.82
WIRE						400 FEET		\$0.04	\$0.04	\$17.16
SERVICE SADDLES	8					1 COUNT		\$42.00	\$45.05	\$45.05
COPPER TUBING						50 FEET		\$1.58	\$1.69	\$84.73
CORP STOPS						1 COUNT		\$16.50	\$17.70	\$17.70
ANGLE STOPS						1 COUNT		\$14.00	\$15.02	\$15.02
METER BOXES						1 COUNT		\$17.50	\$18.77	\$18.77
BOX LID						1 COUNT		\$19.00	\$20.38	\$20.38
G-5						4 COUNT		\$19.75	\$21.18	\$84.73
G-5 LID						4 COUNT		\$14.00	\$15.02	\$60.06
8" CAN MATERIAL						15 FEET		\$2.00	\$2.15	\$32.18
GATE VALVES	6					2 COUNT		\$240.00	\$257.40	\$514.80
GATE VALVES	8					2 COUNT		\$400.00	\$429.00	\$858.00
CI TEES	8					2 COUNT		\$125.00	\$134.06	\$268.13
CI BENDS	6					1 COUNT		\$50.00	\$53.63	\$53.63
C.I. REDUCERS	4 X 6					1 COUNT		\$87.00	\$93.31	\$93.31
NUT BOLT SETS	8					10 COUNT		\$6.00	\$6.44	\$64.35
GASKETS	8					10 COUNT		\$3.25	\$3.49	\$34.86
WELD FLANGES	4					1 COUNT		\$60.00	\$64.35	\$64.35
MISC.									\$0.00	\$500.00
TOTAL MATERIAL										\$9,398.18

MATERIALS LIST

PHASE: 3

PROJECT: SQUIRE

2002 PRICES

PRIMARY MAIN SIZE:		6		# SERVICES		8		2002 PRICES		TOTAL	
MATERIAL	SIZE	#	WIDTH	DEPTH	LENGTH	# UNITS	UNITS	UNIT PRICE	W/TAX	COST	
TRENCH SAND				2	3	450	150.0 TONS	\$8.35	\$8.96	\$1,343.31	
SERVICE SAND		8	2	2	2	5	8.9 TONS	\$8.35	\$8.96	\$79.60	
TRENCH BASE				2	1	450	50.0 TONS	\$9.40	\$10.08	\$504.08	
SERVICE BASE		8	2	2	1	5	4.4 TONS	\$9.40	\$10.08	\$44.81	
COLD MIX				2	2	450	11.3 TONS	\$38.50	\$41.29	\$464.53	
SERVICE MIX		8	2	2	2	5	1.0 TONS	\$38.50	\$41.29	\$41.29	
ASPHALT				2	2	450	11.3 TONS	\$32.00	\$34.32	\$366.10	
SERVICE ASPHALT		8	2	2	2	5	1.0 TONS	\$32.00	\$34.32	\$34.32	
CONCRETE							1 U CART	\$100.00	\$107.25	\$107.25	
C-900 PIPE	6						450 FEET	\$2.25	\$2.41	\$1,085.91	
WIRE							1200 FEET	\$0.04	\$0.04	\$51.48	
SERVICE SADDLES	6						8 COUNT	\$35.00	\$37.54	\$300.30	
COPPER TUBING							200 FEET	\$1.58	\$1.69	\$338.91	
CORP STOPS							8 COUNT	\$16.50	\$17.70	\$141.57	
ANGLE STOPS							8 COUNT	\$14.00	\$15.02	\$120.12	
METER BOXES							8 COUNT	\$17.50	\$18.77	\$150.15	
BOX LID							8 COUNT	\$19.00	\$20.38	\$163.02	
G-5							2 COUNT	\$19.75	\$21.18	\$42.36	
G-5 LID							2 COUNT	\$14.00	\$15.02	\$30.03	
G-12							1 COUNT	\$80.00	\$85.80	\$85.80	
G-12 LID							1 COUNT	\$65.00	\$69.71	\$69.71	
8" CAN MATERIAL							10 FEET	\$2.00	\$2.15	\$21.45	
GATE VALVES	2						1 COUNT	\$34.00	\$36.47	\$36.47	
GATE VALVES	6						1 COUNT	\$240.00	\$257.40	\$257.40	
CI TEES	6						1 COUNT	\$75.00	\$80.44	\$80.44	
M.J. RESTRAINTS	6						1 COUNT	\$31.00	\$33.25	\$33.25	
NUT BOLT SETS	6						4 COUNT	\$6.00	\$6.44	\$25.74	
GASKETS	6						4 COUNT	\$2.00	\$2.15	\$8.58	
FLANGES	6						1 COUNT	\$45.00	\$48.26	\$48.26	
TAP CAPS	6						1 COUNT	\$22.00	\$23.60	\$23.60	
MISC.									\$0.00	\$500.00	
								TOTAL MATERIAL		\$6,619.82	

APPENDIX D

PROJECT SPECIFICATIONS

PARADISE IRRIGATION DISTRICT

**PIPELINE INSTALLATION
PROCEDURES AND SPECIFICATIONS**

JANUARY 1989
(UPDATED JANUARY 2000)

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DIVISION I - GENERAL REQUIREMENTS

1.01 Definition and General Information

Whenever the following words are used in these specifications or in any of the other contract documents, they shall have the meanings given herein.

- (a) The word "District" shall mean the Paradise Irrigation District, Paradise, California.
- (b) The term "Board" shall mean the Board of Directors of the Paradise Irrigation District.
- (c) The word "Manager" shall mean the manager of the Paradise Irrigation District.
- (d) The word "Contractor" shall mean:
 - 1. The person, persons, or corporation entering into contract with the District for the furnishing of material and/or the performance of work covered by these specifications, or
 - 2. Such owners and/or subdividers requesting approval of a water system project.
- (e) References to "District Standards" made in these specifications or drawings shall refer to the current applicable policies of the District. The standards herein described shall apply to all water mains installed for the District or water systems whose ownership is to be transferred to the District upon completion. On a case-by-case basis, District staff may revise standards to suit special circumstances.

1.02 Changes and Extra Work

If during progress of the work on projects contracted by the District, changes or additional work are deemed necessary by the Manager, the District shall pay the Contractor for such work in accordance with a price agreed upon in writing, prior to beginning performance of said change or additional work.

1.03 Standard Drawings

<u>Drawing Number</u>	<u>Title</u>
PID-01	Permanent End of Line Blow Off
PID-02	Thrust Block Details
03-88	6" Fire Hydrant
04-88	Utility Pits
PID-05	Copper Service Installation for ¾" to 2" Meters
PID-06	Multiple Meter Service Installation
PID-07	3" and 4" Meter Installation
08-88	Detector Check Valve
PID-09	Manual Air Valve Assembly
PID-10	Air Release and Vacuum Relief Valve Assembly
PID-11	State Health Dept. Exceptions to Basic Separation Standards for Potable Water and Sewer Pipelines

DIVISION II APPLICATION, LOCATION AND RIGHTS OF WAY

2.01 Applications, Locations and Permits

- (a) Application: All requests to install distribution mains, including those for subdivisions and lot splits, will be made by Contractor or his authorized agent, accompanied by four copies of a map approved by the P. F. D. to the Manager for checking, and the to the Board for approval. All pipeline installations shall be at the sole cost and expense of the Contractor, and shall be installed according to the District's specifications as hereinafter set forth and as set forth in the Rules and Regulation of the District. All new installations shall be connected onto District's system at a point and in a manner designated by the District. A pre-job conference between the Contractor and District staff is required to insure all specifications are understood.

Upon final inspection and testing, water will be turned off and will remain off until the following items have been received in the District office:

1. An as-built map showing details of actual location of pipe, valves, and etc.
 2. Total cost of water project, including PID charges.
 3. A legal description of the easement in which the water system is located.
 4. A signed conveyance of pipeline and/or easement, including a two (2) year guarantee of material and workmanship.
- (b) Location: Pipelines shall be so located within an easement, not less than 20 feet in width, in a manner which will meet with the District's approval for the purpose of maintenance and operation in the future. Provision may be required for an extension to adjoining lands via an easement to the District for that purpose.

- (c) Permits: The Contractor shall secure, from the agencies having jurisdiction, the necessary permits to create obstruction and to excavate for the pipelines as required and present evidence to the Manager that such permission has been granted before work is commenced. Regulations and requirements of all agencies concerned shall be strictly adhered to in the performance of this contract. The enforcement of such requirements under this contract shall not be made the basis for claims for additional compensation.

2.02 Access Rights-of-Way

Access roads or working space adjacent to work sites, which may be required by the Contractor, shall be arranged for and paid for entirely by the Contractor.

2.03 Interference with Traffic and Fire Hydrants

The Contractor shall conduct his operations so as not to close or obstruct any portion of any highway, road or street, or prevent in any way free access to fire hydrants until he has secured permission to do so from the proper authorities. The Contractor shall conduct his operations so as to avoid unnecessary interference with the flow of traffic along highways and streets.

2.04 Construction Interferences

- (a) As used in this section, the word "utility" shall be understood to include tracks, overhead or underground wires, cable, pipelines, conduits, ducts, sewers or storm drains. As used in this Section, the term "service connection" shall be understood to mean all or any portion of a pipeline conduit, wire, cable or duct, including meter, between a utility distribution line and an individual customer when served by a single service connection. As used in this Section, the term "construction interference" shall be understood to include any utility or service connection within the limits of excavation or over excavation required for the work under the contract as shown or as ordered by the Manager or any utility or service connection located in the space which will be required by any of the work under the contract.
- (b) In the event any utility or service connection is required to be disturbed or removed to permit construction of a pipeline or other structure under the contract, such disturbance or removal shall be done only with the approval of the Manager and following notification to the owner of the interfering utility or service connection. Any such utility or service connection removed or otherwise disturbed shall be reconstructed as promptly as possible in its original or other authorized location in a condition at least as good as prior to such removal or disturbance, subject to the inspection of the owner of same. The Contractor's responsibility under this Section to remove or replace shall apply even in the event such damage or destruction occurs after backfilling or is not discovered until after completion of backfilling. The owner of the utility or service connection shall be notified immediately after damage or destruction occurs or is discovered.
- (c) During the performance of the work under this contract, the owner of any utility affected by the work shall have the right to enter when necessary upon any portion of the work for the purpose of maintaining service and of making changes in or repairs to said utility.

- (d) All costs involved in removing, relocating, protecting, supporting, repairing, or replacing a utility shall be borne by the Contractor.
- (e) The Contractor shall not be assessed liquidated damages for failure to complete the work on time to the extent that such delay was caused by failure of the District or Agency having jurisdiction over the utility to authorize or otherwise provide for its relocation, removal, protection, support, repair, maintenance, or replacement.

2.05 Separation of Utilities

The installing of other utilities in a common trench with a District water main is prohibited. No utility shall be installed directly over nor within twelve (12) inches of any portion of the water system. No sewer line shall be placed in the same trench with the water line. The District's standard concerning sewer lines shall correspond to the standard of the State Department of Public Health, to wit:

STANDARD FOR SEPARATION OF WATER AND SEWER LINES

- (a) Water lines shall be laid in separate trenches as far as possible from nearby sewer lines. A minimum horizontal separation of ten (10) feet is required.
- (b) Water lines shall be laid at a higher elevation than nearby sewer lines.
- (c) When pipelines cross, the bottom of the water line shall be at least twelve (12) inches above the top of the sewer pipe.
- (d) In the event the sewer must cross above the water main, special construction methods will be required.
- (e) Steel casings or tunnels for the passage of water and sewer lines under railroad tracks, highways or other structures shall be specially designed to eliminate any hazard of contamination to the water system.
- (f) State Health Department exceptions to basic separation standards for potable water and sewer pipelines are shown in Standard Drawing PID-11.

DIVISION III - EARTHWORK

3.01 General

The Contractor shall perform all earthwork required for the complete installation of mains and all appurtenances to the required alignment and grade.

Prior to excavation notify Underground Service Alert (USA) at 1-800-227-2600.

3.02 Excavation

- (a) The Contractor shall furnish, place and maintain all supports and shoring that may be required in accordance with applicable State and Federal Industrial Safety Standards, and all pumping, ditching or other approved measures for the exclusion of water from any source so as to prevent damage to the work. Unless otherwise approved by the District, the maximum length of open trench in any one location shall be 500 feet.

(b) PIPELINE EXCAVATION

Trenches for 6" and larger water mains shall have a width equal to the outside diameter of the pipe plus twelve (12) inches. Trenches for water mains smaller than 6" may, depending upon local conditions, be narrower with District approval. The bottom of the trench shall be excavated to a depth of 4" below the bottom of the pipe and trench depth maintained deep enough to provide a minimum 30" of cover over the pipe.

(c) OVER-EXCAVATION, ORDERED

Where, in the District's opinion, the bottom of the trench is in wet or spongy material, the District may order the Contractor to over-excavate below the specified grade and refill with aggregate bedding to the bottom of the specified sand bedding. Such over-excavation will be at the Contractor's own expense.

(d) OVER-EXCAVATION

Any excavation carried below subgrade not as ordered, shall be refilled to the required grade with select material and compacted to 90 percent of maximum density. Such work shall be at the Contractor's own expense.

(e) DISPOSAL OF EXCESS EXCAVATED MATERIAL

The Contractor shall remove and dispose of all excess excavated material at his own expense.

3.03 Bedding

(a) AGGREGATE BEDDING

Where required by the District, aggregate bedding shall conform to the following: 1-1/2 inch maximum size aggregate bedding shall be placed in six (6) inch layers and compacted.

(b) SAND BEDDING

Sand Bedding shall be 1/4" minus in size and meet the approval of the District and shall be placed to a depth of four (4) inches below the grade of the bottom of the pipe. When rocky trenching conditions are encountered, over-excavation and oversanding in compacted layers, as specified by the District, will be required.

3.04 Backfill

(a) GENERAL

Materials used for backfill shall be selected free from vegetation. Materials coming into contact with the pipe shall also be free from rocks, boulders or broken masses of earth.

(b) BACKFILL IN TRENCHES (Note, Section 7.03 regarding pipe testing)

1. Pipe shall be back-filled to a level twelve (12) inches above the top of the pipe with imported sand in the following manner: If compaction by jetting is used, and approved by the District, pipe shall be backfilled with imported sand to the top of the pipe and jetted down, and around, the pipe to fill all voids, then a 12" lift above the pipe with water compaction by jetting. Flooding of the trench is not

allowable. If compaction by hand tamping is used, the pipe shall be backfilled in 4" lifts to a level 12" above the top of the pipe (See Section 6.02(d) regarding finder wire). Mechanical compactors shall not be used on top of the pipe until a minimum of 12" of hand tamped backfill above the pipe has been completed.

2. The remaining backfill shall be placed in layers six (6) inches thick or as approved by the District or as approved by the Agency having jurisdiction.

3.05 Cutting and Restoring Street Surfaces and/or Improvements

- (a) In cutting or breaking up street surfacing, the Contractor shall not use equipment that will damage adjacent pavement or other improvements. Existing paved surfaces shall be cut back beyond the edges of the trenches to form neat square cuts before repaving. All improvements damaged shall be replaced in kind or better or to specifications of the Agency having jurisdiction, at the Contractor's own expense.
- (b) All valve boxes and covers within the scope of the contract shall be adjusted to grade to the satisfaction of the District.

DIVISION IV - CONCRETE

4.01 General

Unless otherwise provided in writing, the Contractor shall furnish all materials for concrete and mortar, and shall form, mix, place, cure, repair, finish and do all other work required to produce finished concrete structures.

4.02 Concrete Mix

The concrete mix used for all concrete required hereunder shall be composed of Portland cement and properly graded sand and rock. The proportions of cement and aggregates shall be such as to produce a workable mix with a minimum compressive strength of 3,000 psi at the age of 28 days for structures, and of 1,500 psi at the age of 28 days for pipe encasement and thrust blocks. The quantity of water used shall be just sufficient, with a normal mixing period, to produce a concrete, which, in the judgment of the District, can be worked into place without segregation.

4.03 Cement

All cement used on the work shall be a standard brand Portland cement conforming to the State of California "Specifications for Portland Cement."

4.04 Aggregates

Aggregates shall be obtained from pits approved by the District and shall conform to the State of California Standard Specifications for Concrete Aggregates. Coarse aggregate shall be of 1-1/2" maximum size.

4.05 Water

Water shall be clean and free from objectionable quantities of organic matter, alkali, salts, and other impurities.

4.06 Forms

Forms to confine the concrete and shape it to the required lines shall be used wherever necessary. Forms shall be required for all exposed concrete surfaces, including the interior surfaces of all underground structures. All forms shall be smooth. Forms shall not be removed until the District has given permission to do so.

4.07 Tamping

As concrete is placed in forms or in excavations, it shall be thoroughly settled and compacted throughout the entire depth of the layer that is being consolidated, into a dense homogeneous mass. Except in special cases where the District deems their use impracticable, the Contractor shall use high-speed internal vibrators of an approved immersion type.

4.08 Curing

All structural concrete shall be cured by being kept moist for 14 days after placing, or at the option of the Contractor, may be cured by an impervious membrane of a type approved by the District. Encasement concrete, concrete cradle and anchor blocks, if any, may be covered with earth 24 hours after placing.

4.09 Ready-Mixed Concrete

At the Contractor's option, ready-mixed concrete may be used which meets the requirements as to materials, batching, mixing, transporting and placing as specified herein and the requirements of the "State of California Specifications for Ready-Mixed Concrete." The quality and quantity of materials used in ready-mixed concrete and in batched aggregates shall be subject to inspection at the batching plant.

DIVISION V – APPURTENANCES

5.01 Gate Valves

Valves shall be installed at points designated by the District. Each valve shall be enclosed in a concrete valve box with cover, or as specified by the District.

Gate valves larger than 2" shall be equal in diameter to the pipe, or as specified, and shall meet AWWA standards. They shall have 2-inch operating nuts. If the depth from finish grade to the top of valve nut exceeds 42 inches a valve stem extension is required. The extension shall be fabricated with a 2-inch nut at a depth of 15 inches (± 3 inches) from finished grade.

2-inch and smaller gate valves shall be Milwaukee, Grinnell, Nibco, or equal, and shall meet AWWA standards.

5.02 Blow Offs

Blow off valves and connections of at least two (2) inch diameter shall be installed at points designated by the District and provisions made for taking care of waste

water either in gutters or easements for water run off. Each blow off valve shall be enclosed in a suitable enclosure with lid (see 5.01).

5.03 Air Valves

A combination air release vacuum valve of at least one (1) inch shall be installed at all high points in the lines. Covers for air valves shall be such that drainage will not enter valve box but will permit sufficient air to enter so as not to impair the operation of the air valve. The type of box and cover is subject to the approval of the District.

5.04 Fire Hydrants

- (a) Requests for system extensions shall be accompanied by 4 copies of the proposed extension showing fire hydrant number and location and approved by the Paradise Fire Department.
- (b) Gate valves that serve fire hydrants shall be equal in size to the hydrant lateral and meet the requirements under section 5.01, above. They shall be equipped with a flanged connection contiguous to the main.
- (c) Hydrant lateral piping shall conform to the current District specifications.
- (d) Fire hydrants shall be those approved by the Paradise Fire Department (PFD), painted yellow per PFD specification and equipped with pentagon nuts on all hydrant valve stems.

5.05 Service Laterals

Service laterals shall include all necessary pipe, valves and fittings required from the tie-in at the main to the District end of service inside the meter box and are to include the meter box with cover and customer-side shutoff valve.

DIVISION VI - INSTALLATION OF PIPING

6.01 General

- (a) TIE-IN: The District shall make all tie-ins between pipe extension and the District's system. Temporary connections may be required for pipe disinfection, flushing, and testing. (The District may elect to construct road crossings.) Costs involved in tie-ins and road crossings shall be the responsibility of the Contractor. Generally, tie-ins will be required prior to commencing pipe extension.
- (b) District staff shall determine pipe size according to potential need and subject to Board approval.
- (c) At all times when the work of installing pipe is not in progress, all openings into the pipe shall be tightly closed to prevent entrance of animals and foreign materials. The contractor shall take all precautions to prevent the pipe from floating due to water from any source, shall assume full responsibility for any damage due to water from any source and shall restore pipe to specified condition and grade at this own expense. Any pipe that has floated shall be removed from the trench and the bedding corrected (AWWA 603-78).

- (d) All pipe, couplings and rubber rings shall be inspected prior to installation. All damage or defective material shall be removed from the job site. Non-approved lubricant (which may harbor bacteria) shall not be used.
- (e) Contractor will perform field cutting and/or machining at his own expense and using his own equipment, unless otherwise specified.
- (f) Field welding of pipe joints shall conform to the requirements of the District and of the "AWWA Standards for Field Welding of Steel Water Pipe Joints."

6.02 Installation

- (a) The Contractor shall install all pipe, fittings, valves and appurtenances shown or required. All exposed piping shall be adequately supported.
- (b) The pipe sections shall be laid to true alignment, and where grade is not shown, shall have a minimum cover of 30 inches to finish grade. Bumping of the pipe in the trenches will not be permitted. Concrete thrust blocks shall be provided by Contractor where required.
- (c) Pipe shall be installed in accordance with the AWWA Standard for installation of that particular type water pipe subject to these exceptions; pipe shall not be laid using earth mounds, and to prevent accumulations of air and to enable the pipe to be drained, there shall be no high or low points where not shown on the drawings.
- (d) AC and Plastic pipelines, and all service lines, shall be provided with 12 gauge solid insulated copper wire laid along the top of the pipe following completion of sanding and compaction to the top of pipe. The wire shall be over the center and in contact with the full length of the pipe. This is to provide for locating pipes in the future. Wires are to carry a continuous circuit from all extremities of the pipelines. Ends shall be terminated by connection to existing locator wires or existing metal pipes. Portions of the wire that have been exposed, for whatever reason, shall be protected from soil contact by wrapping with electrical tape (or other approved method) before placement of backfill.
- (e) Trenches shall be reasonably dry when pipe is laid. Necessary facilities, including slings, shall be provided for properly placing pipe in the trenches without damage. The bedding shall be checked for firmness and uniformity of surface before placing each pipe section in its final position for jointing. Bell holes are required at couplings to insure firm support, the full length of the pipe.

DIVISION VII - DISINFECTION, INSPECTION, TESTING, ACCEPTANCE

7.01 Disinfection

WARNING: This procedure must not be used on solvent-welded plastic or on screwed-joint steel pipe because of the danger of fire or explosion from the reaction of the joint compounds with the calcium hypochlorite.

- (a) Placing of calcium hypochlorite tablets. During construction, 5-gram calcium hypochlorite tablets shall be placed in each section of pipe and also one such tablet shall be placed in each hydrant, hydrant branch, and other appurtenance. Table 2 shows the number of tablets required for commonly used sizes of pipe. An adhesive such as Permatex No. 1 or equal shall attach the tablets to the pipe. There shall be no adhesive on the tablet except on the broad side attached to the surface of the pipe. Attach all the tablets inside and at the top of the main, with approximately equal numbers of tablets at each end of a given pipe length. If the tablets are attached before the pipe section is placed in the trench, their position shall be marked on the section so it can be readily determined that the pipe is installed with the tablets at the top.

Table 2. Number of 5-g Calcium Hypochlorite Tablets Required for Dose of 25mg/l

Pipe Diameter (inches)	Pipe Length (feet)				
	13 or less	18	20	30	40
	Number of 5 gram Calcium Hypochlorite Tablets *				
4	1	1	1	1	1
6	1	1	1	2	2
8	1	2	2	3	4
10	2	3	3	4	5
12	3	4	4	6	7
16	4	6	7	10	13

* Based on 3.25 grams available chlorine per tablet. Any portion of a tablet rounded to next higher number.

- (b) Chlorinating solvent weld pipe. Solvent weld pipe is to be disinfected with sodium hypochlorite solution at a dosage to be calculated by District staff to achieve a dosage of 25 parts per million based upon the strength of the solution. Special temporary fittings may be required to inject the disinfectant.
- (c) Filling and contact time. When installation has been completed, the main shall be filled with water by District personnel at a rate such that water within the main will flow at a velocity no greater than 1 ft/s. Precautions shall be taken to assure that air pockets are eliminated. This water shall remain in pipe for at least 48 h. Valves shall be positioned so that the strong chlorine solution in the treated main will not flow into water mains in active service.
- (d) Chlorinating valves. During the process of chlorinating the pipelines all valves and other appurtenances shall be operated while the pipeline is filled with the heavily chlorinated water.

7.02 Inspection

- (a) A pre-job conference between the Contractor and the District staff is required to insure all specifications are understood.
- (b) Contractor shall notify the District at least 24 hours prior to commencing any stage of the project, and prior to each required inspection.

- (c) The District shall inspect the Project:
 - 1. When beginning trenching and pipe installation.
 - 2. Upon completion of the entire installation (or section thereof if approved by the District) including laterals and hydrants. This inspection must be completed prior to placement of any backfill and testing.
 - 3. Upon completion of the entire project.
 - 4. As deemed necessary during construction.
- (d) Any pipe covered before inspection and approval, shall be uncovered at the Contractor's expense, for such inspection and approval.

7.03 Testing

Following District inspection and approval of the pipe system or completed sections all pipe with the exception of joints, fabricated sections and service lines shall be backfilled.

HYDROSTATIC TESTS

All parts of the entire pipeline installation shall be tested in accordance with AWWA Specification. District will flush the line of disinfectant upon completion of a satisfactory test.

FLOW TESTING

After flushing, the Paradise Fire Department will flow test any associated fire hydrants in the new pipe construction to determine that flows meet the original design specifications. Should a pipeline not meet flow design specifications the District will not accept the pipe into its system until the problem has been rectified between the Contractor, Engineer and Paradise Fire Department. The Paradise Irrigation District will not be responsible for any failures that may occur to the new pipe construction incidental to flow testing done by the Paradise Fire Department. A representative of the Contractor or Owner may be present during flow testing.

7.04 Acceptance

After the pipe has been tested to the satisfaction of the District and Paradise Fire Department the water will be turned off. After approval by the Manager and upon presentation to the District (when applicable) of a deed to the pipe system, an easement description, an accounting of total system cost, an as-built map, and also when accepted by the Board of Directors, the water will then be turned on to the pipeline for regular service.

7.05 Penalty for Unauthorized Tampering or Water Usage

Persons found to be in violation of this Section will be subject to prosecution, discontinuance of water service if applicable, or both.

- (a) Penal Code References:

1. Penal Code Section 625 makes it a misdemeanor to open, or draw water from, a valve after being notified that it has been closed for a specific reason.

OR

2. Penal Code Section 498(b) makes it a misdemeanor to obtain water without payment by: diverting it without authority, tampering with the water system, making an unauthorized connection, or knowingly using such unauthorized water.

OR

3. Penal Code Section 624 makes it a misdemeanor to willfully break, dig up, obstruct or injure any pipeline or appurtenances.

- (b) The penalty for a misdemeanor is a fine up to \$1,000, confinement in the County Jail up to six months, or both (Penal Code Section 19).
- (c) The District intends to prosecute violators of this and any other applicable sections of the penal code.

DIVISION VIII - STANDARDS AND SPECIFICATIONS FOR COPPER SERVICE LINES

8.01 Installation Standards

- (a) Material and Fittings. Services up to 2" in diameter shall be constructed of type "K" copper tubing. Larger services shall be constructed of flanged, ductile iron pipe.
- (b) Unless otherwise specified or approved by the District, flare or compression fittings (Ford Meter Box Company or equal) are to be used for connecting copper tubing to other appurtenances. Packed joint fittings are **not** allowed.
- (c) An approved tubing cutter and flaring tool shall be used to prepare copper tubing for fitting attachment. Knife and hacksaw cuts will not be allowed.
- (d) All material is to be stored in a clean, dry location, away from corrosive materials.

8.02 Installation

- (a) Connections (2-inch and smaller) to water mains are to be made at an angle of 22-1/2° above the spring line of the main from the horizontal in order to provide flexibility and avoid the bleeding of trapped air into services.
- (b) Unless otherwise specified by the District, the order of connections shall be followed as shown in Section 8.03 and Standard Drawing PID-05 and 06-88, a part of these specifications.
- (c) The copper tubing is to be laid in the trench in a "snaking" fashion to allow flexibility and thermal contraction, and all curves or bends will be gently arched with no sharp angles formed which might cause crimping or deformation of the tubing.
- (d) Only clean, select backfill is to be used, free from rocks and roots or any object that may cause a puncture or deformation in the tubing.

- (e) District approved meter boxes are required, and considered a part of new installations, and shall be set with the top of the box 2" above grade, or meet finish grade in paved areas.
- (f) Service lines shall be laid at right angles to the water main and run directly to the meter box. A tracer wire must be provided.

8.03 Parts Specifications

GENERAL: Copper tube and flare or compression connections.

SPECIFIC: For 5/8" x 3/4" singles and doubles and 1" meter singles on DI or PVC mains:

Saddle tapped with 1" opening

1" corporation stop w/flare or compression connection

1" copper tubing

1" meter angle stop

or

1" x 3/4" x 3/4" branch valve assembly

Meter Box(es)

8.04 Meter Boxes and Utility Vaults

Meter Boxes

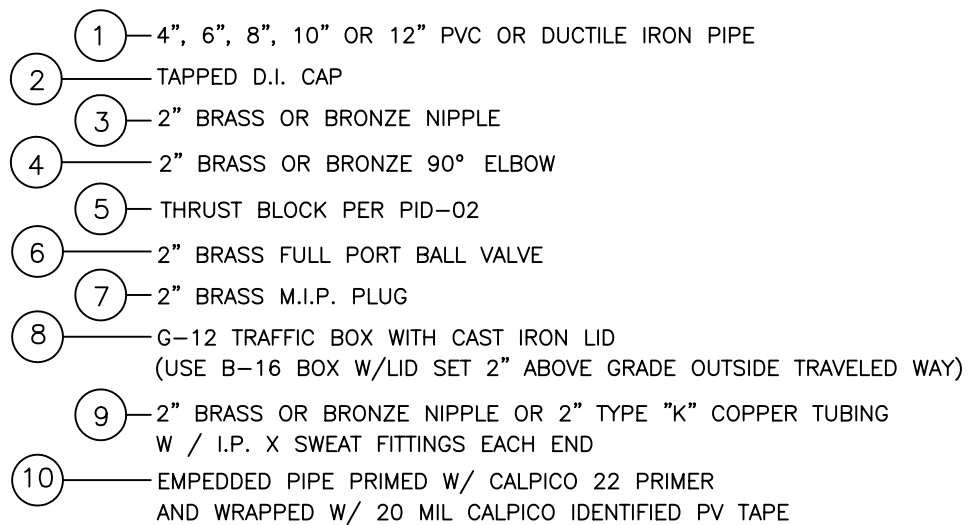
On all services 2 inches and smaller, an appropriate size and type meter box shall be installed, set at appropriate grade, which will completely enclose the meter, the meter angle stop, and the service valve. For details see Standard Drawing PID-05.

Meters 3-inch and larger shall be installed in a utility vault. For details see Standard Drawing PID-07, and below.

Utility Vaults

- (a) Underground vaults shall be of a size to allow working room around the facilities enclosed, and shall be precast concrete meeting the standard specifications of Forni Corporation, number WG 3050 or equal.
- (b) Lids shall meet the American Association of State Highway Officials Standard Specification H-20, when vaults are installed in traffic areas. In non-traffic areas vault lids will be as specified by the District.
- (c) All lids in traffic or pedestrian areas must be bolted down and meet the surrounding grade exactly. Any installation not conforming to a perfect finish grade transition is unacceptable.
- (d) Concrete blocking, or other methods approved by the District, must be provided to prevent settlement under vault walls and corners, and to support the valve unit(s).
- (e) Where extensions are used to bring meter boxes or vaults up to grade, all joints shall be tightly sealed by neat brickwork and/or grouting with cement.

- (f) A 12-inch depth of 3-inch drain rock is required over the bottom of the vault to help drainage and percolation. A 12-inch depth of 3-inch drain rock is required over the bottom of the vault to help drainage and percolation.
- (g) Maintain a minimum of 12 inches clearance below the valve units.
- (h) If mechanical joint or push-on fittings are used, restraining rods through the vault wall shall be required.
- (i) All vaults shall be provided with a permanent ladder installed.

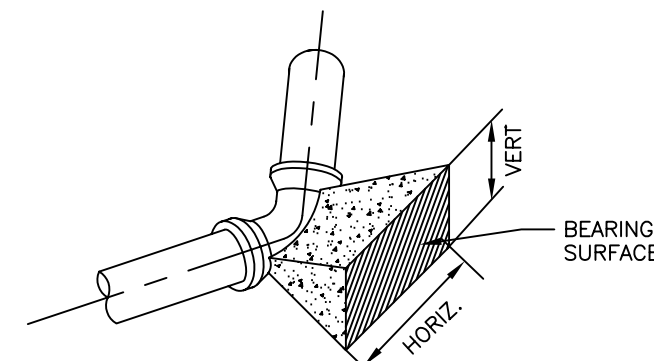


SHEET 1 OF 1

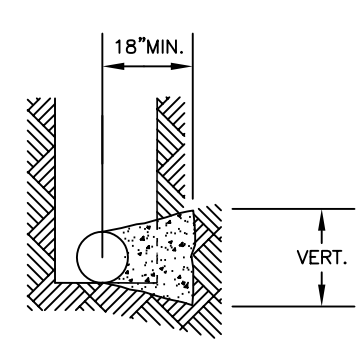
DRAWN CHECKED
NE JP

DATE
DECEMBER, 1999

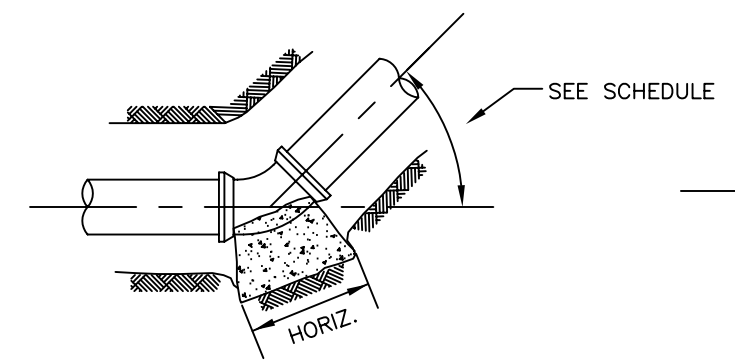
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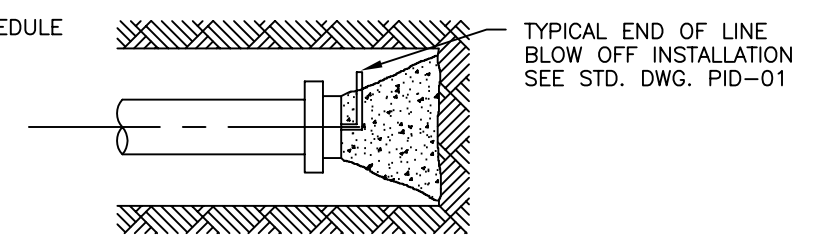
TYPICAL BEARING SURFACE



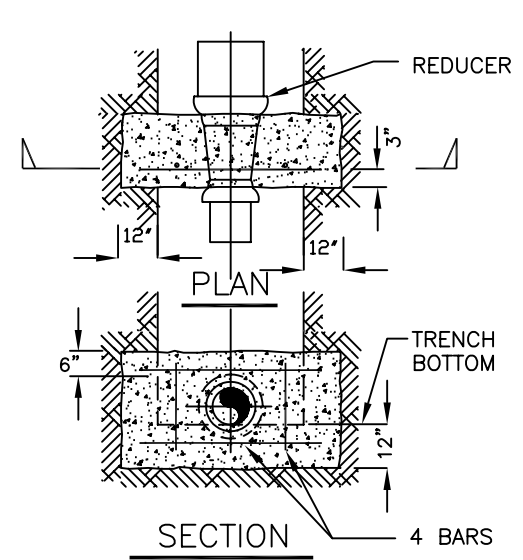
TYPICAL PROFILE



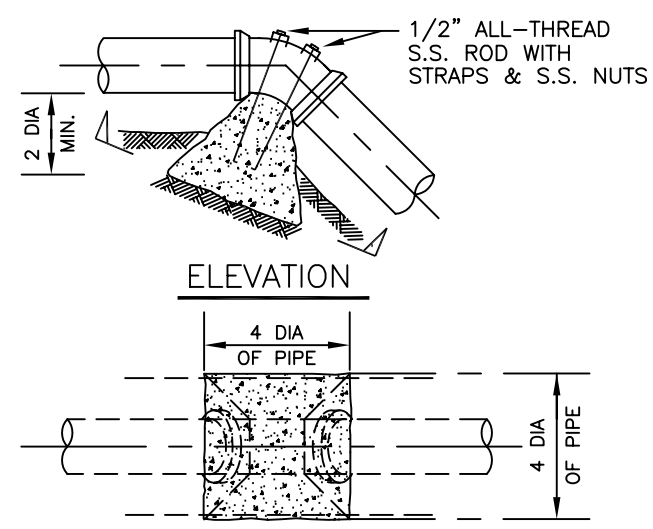
TYPICAL BEND



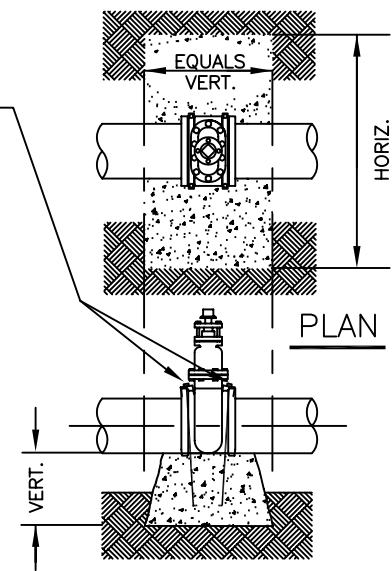
END CAP



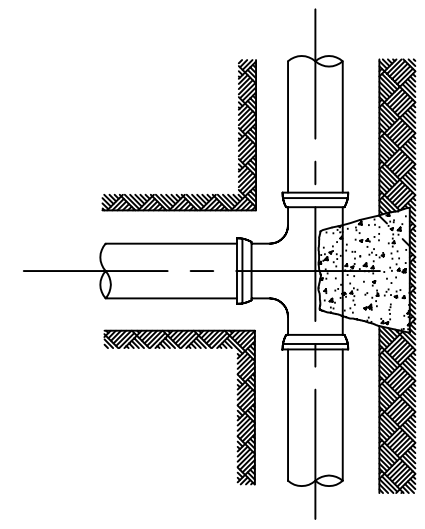
REDUCER



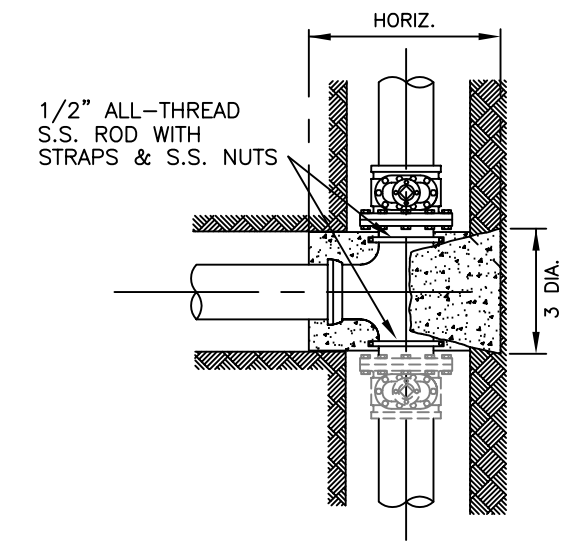
VERTICAL BEND



VALVE



W/O LINE VALVE



W/ LINE VALVE(S)

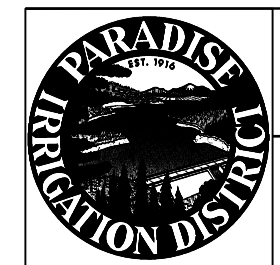
TEE

NOTES:

1. THRUST BLOCK BEARING AREA BASED ON ALLOWABLE SOIL BEARING VALUE OF 2,000 psf PRESSURE AND 225 psi LINE PRESSURE WITH 30" COVER MINIMUM.
FOR BEARING = 1000 psf, 2.0 X AREA SHOWN
FOR BEARING = 500 psf, 4.0 X AREA SHOWN
2. WHERE THRUST BLOCK WILL HAVE LESS THAN 12" COVER ENGINEERED DESIGN IS REQUIRED.
3. PREDESIGNED THRUST RESTRAINTS ARE SUBJECT TO SITE SPECIFIC REVIEW.
4. ALL THRUST BLOCKS SHALL BE CLASS "B" CONCRETE AND PLACED AGAINST UNDISTURBED SOIL. DESIGN ENGINEER SHALL DETERMINE SIZES NOT SHOWN.
5. REINFORCING STEEL SHALL CONFORM TO ASTM A15 AND A305 INTERMEDIATE GRADE.
6. CONCRETE SHALL NOT EXTEND ONTO FLANGE OR ADJOINING PIPE.

MINIMUM SIZE OF THRUST BLOCK BEARING SURFACE

PIPE SIZE	11 1/4" BEND		22 1/2" BEND		45° BEND		90° BEND		VALVE, TEE OR END CAP		VALVE & TEE	
	HORIZ.	VERT.	HORIZ.	VERT.	HORIZ.	VERT.	HORIZ.	VERT.	HORIZ.	VERT.	HORIZ.	VERT.
4"	1'-0"	1'-0"	1'-0"	1'-0"	1'-4"	1'-0"	2'-4"	1'-0"	1'-8"	1'-0"	1'-4"	1'-8"
6"	1'-0"	1'-0"	1'-6"	1'-0"	2'-0"	1'-6"	3'-6"	1'-6"	2'-6"	1'-6"	2'-0"	2'-6"
8"	1'-4"	1'-0"	2'-0"	1'-4"	2'-8"	2'-0"	4'-8"	2'-0"	3'-4"	2'-0"	2'-8"	3'-4"
10"	1'-8"	1'-3"	2'-6"	1'-8"	3'-4"	2'-6"	6'-0"	2'-6"	4'-2"	2'-6"	3'-4"	4'-2"
12"	2'-0"	1'-6"	3'-0"	2'-0"	4'-0"	3'-0"	7'-0"	3'-0"	5'-0"	3'-0"	4'-0"	5'-0"



PARADISE IRRIGATION DISTRICT
STANDARD DRAWING

PID-02
SHEET 1 OF 1

THRUST BLOCK DETAILS

DRAWN NE CHECKED JP
DATE
DECEMBER, 1999
NO SCALE

largest outlet faces street

FIRE

letters are welded or
imprinted on cover

LONG BEACH 425 or 430 as
required. Install with positive
break-off check valve
and 4" spool

2 1/2" MIN.

varies

concrete box

LB
400

30"
min

24" min.

CORRUGATED PLASTIC
CAN STOCK

6"
10"
12"

WIRE

ringite x flange tee and
flange x ringite valve

pour thrust blocks against
undisturbed native soil or
compacted fill

PARADISE IRRIGATION DISTRICT

P.F.D. approved, 6" fire hydrant

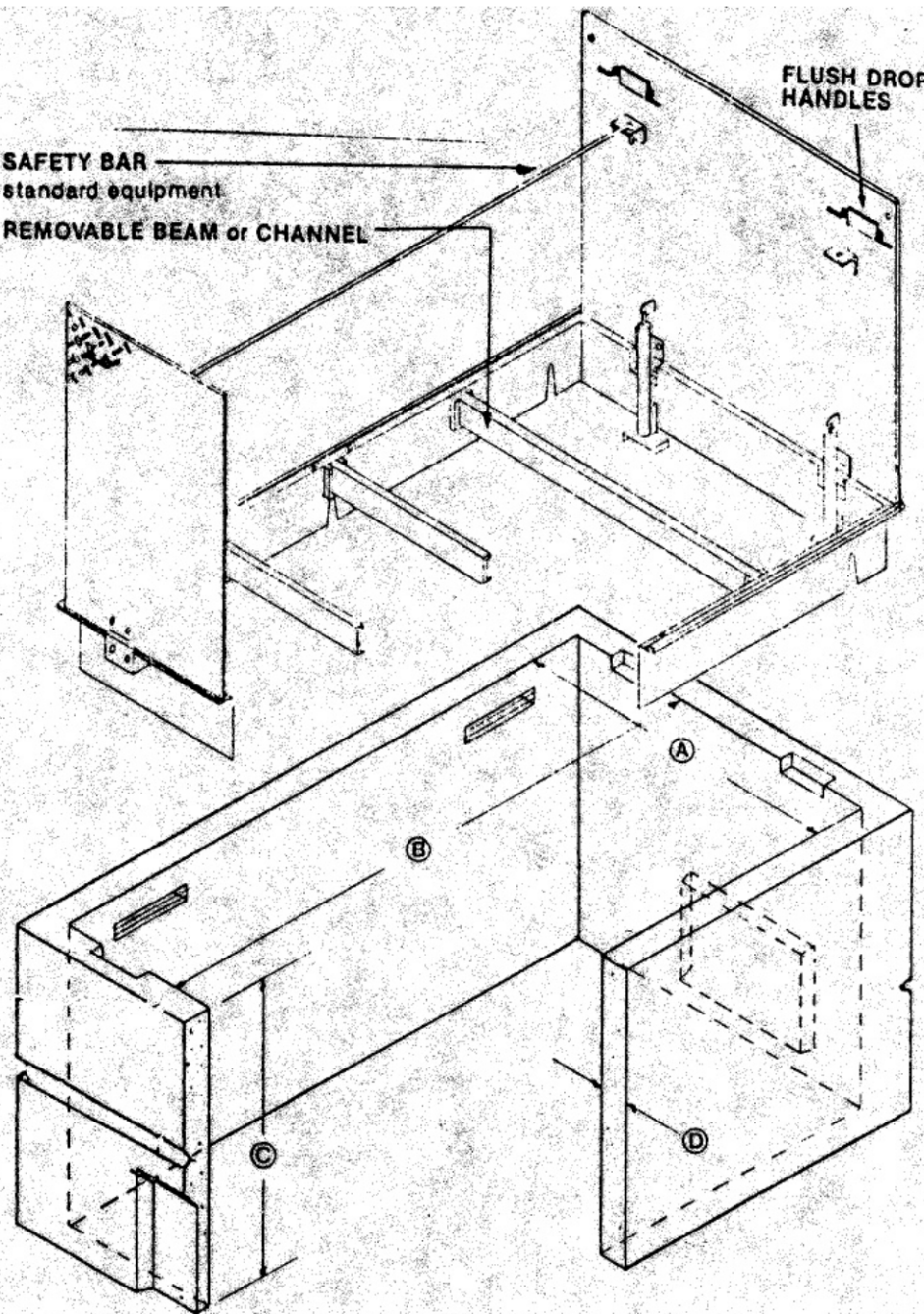
standard no. 03-38

HINGED SPRING
ASSIST GALVANIZED
FULL TRAFFIC COVER

SAFETY BAR
standard equipment

REMOVABLE BEAM or CHANNEL

FLUSH DROP
HANDLES



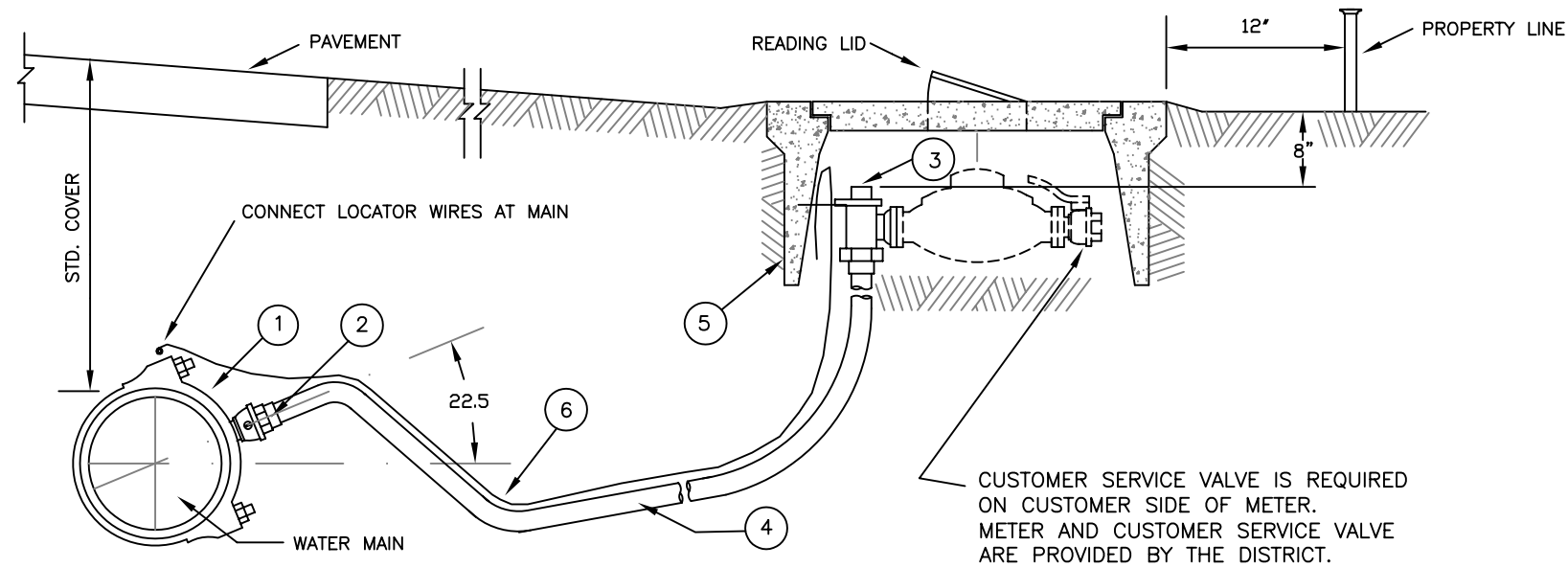
PITS DESIGNED FOR H-20-44 LOAD RATING.

ALL STEEL, OTHER THAN REBAR, TO BE HOT DIPPED AND GALVANIZED AFTER FABRICATION.

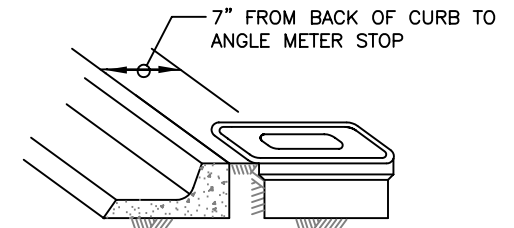
UTILITY PITS

PARADISE IRRIGATION DISTRICT

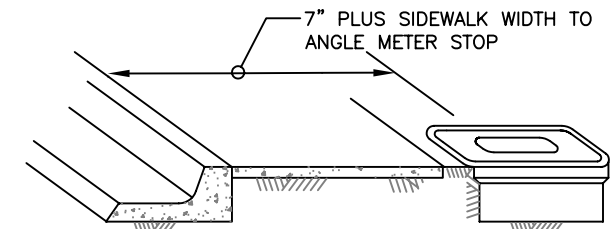
STANDARD NO. 04-88



WITH CURB AND GUTTER



WITH CURB, GUTTER AND SIDEWALK

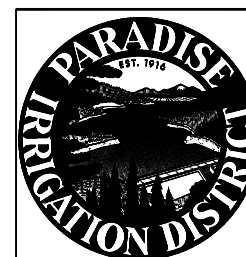


MATERIALS

ITEM NO.	SIZE & DESCRIPTION	MANUFACTURER	SPEC. NO.
①	DOUBLE S.S. STRAP DUCTILE IRON SERVICE SADDLE W/ I.P. OUTLET	ROMAC FORD ROCKWELL	
②	BRONZE CORPORATION STOP I.P. THREAD X COMPRESSION OR FLARE	MUELLER FORD JONES	
③	BRONZE ANGLE METER STOP W/LOCKWING (COMPRESSION OR FLARE TYPE)	JONES FORD	
④	COPPER TUBING (COPPER TYPE "K" SOFT)	MUELLER HALSTEAD OR EQUAL	
⑤	METER BOX W/READING LID		METER SIZE 3/4" 1" TO 2"
	PLANTER AREAS: GREEN PLASTIC BOX & LID	CARSON	14-19 12-20
	PAVEMENT AREAS: CONCRETE BOX AND LID	CHRISTY	B-16 B-16
⑥	12 GAUGE SOLID INSULATED COPPER WIRE	SEE SPECS.	

NOTES:

- SERVICE SADDLE SHALL NOT BE INSTALLED WITHIN 18" OF VALVE, COUPLING, JOINT OR FITTING. TAPPED COUPLINGS ARE NOT PERMITTED.
- INSTALL CORPORATION STOP WITH KEY SIDEWAYS IN OPEN POSITION.
- BOX COVER TO BE SET TO CONFORM TO PLANTER GRADE IN UNPAVED AREAS. SURROUNDING GROUND SHALL DRAIN AWAY FROM BOX. SET TOP OF METER BOX FLUSH WITH SIDEWALK OR CURB WHERE APPLICABLE.
- THE CORPORATION STOP TAP SHALL BE MADE AS SPECIFIED BY THE PIPE MANUFACTURER'S INSTALLATION GUIDE. ALL TAPS SHALL BE MADE WITH MACHINE GUIDE OR PILOT TAP.
- THE WATER SERVICE SHALL EXTEND PERPENDICULAR TO THE CENTERLINE OF THE STREET FROM THE WATER MAIN TO THE METER STOP.
- METER BOX SHALL BE SET BEHIND SIDEWALK WHERE SIDEWALK IS ADJACENT TO CURB.
- COPPER TUBING SHALL NOT BE SPLICED.
- FOR MULTIPLE METER SERVICE INSTALLATION REFER TO STANDARD DRAWING PID-06.



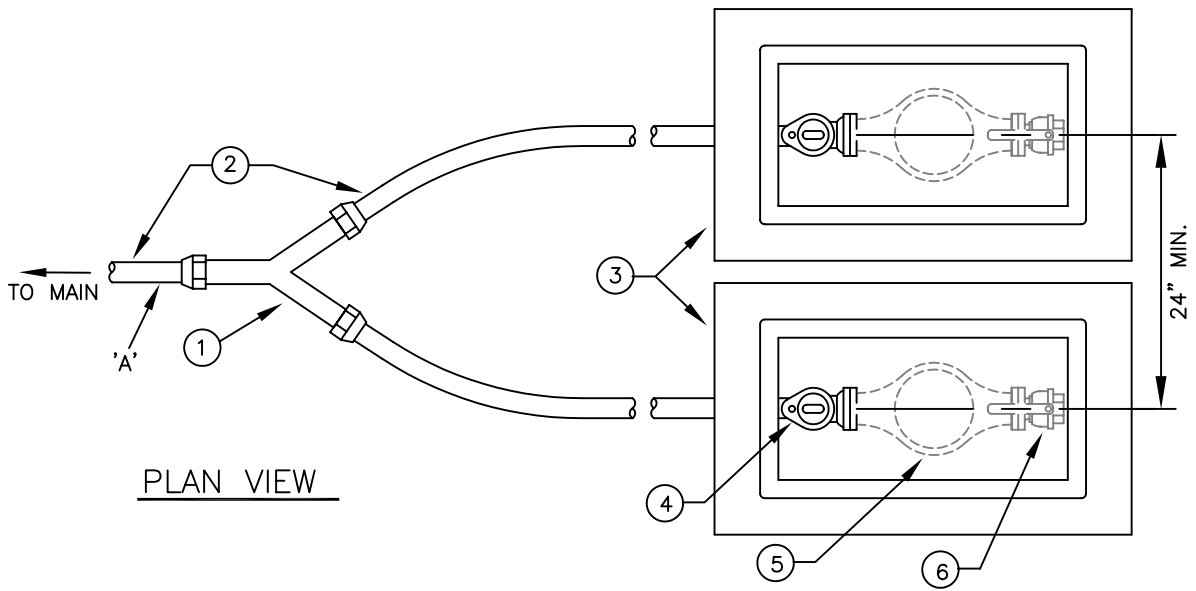
PARADISE IRRIGATION DISTRICT STANDARD DRAWING

COPPER SERVICE INSTALLATION
FOR 3/4" TO 2" METERS

PID-05

SHEET 1 OF 1

DRAWN NE
CHECKED JP
DATE
DECEMBER, 1999
NO SCALE



ITEM
NO

MATERIALS

- ① BRASS WYE FITTING, FLARE OR COMPRESSION
- ② TYPE "K" SOFT COPPER TUBING
- ③ METER BOX W/ READING LID
- ④ BRONZE ANGLE METER STOP W/LOCKWING, FLARE OR COMPRESSION
- ⑤ METER (SUPPLIED BY DISTRICT)
- ⑥ BRASS FULL PORT BALL VALVE (SUPPLIED BY DISTRICT)

METERS	MATERIAL SIZE	MIN. MAIN PRESSURE
2 @ 3/4"	1" X 3/4" X 3/4" WYE, 1" LINE 'A'	80 PSI
2 @ 1"	1 1/2" X 1" X 1" WYE, 1 1/2" LINE 'A'	60 PSI

NOTES:

- SERVICE LINE SIZE BASED ON TWO METERS, 50' MAXIMUM LINE LENGTH TO METER AND MINIMAL ELEVATION DIFFERENCE BETWEEN METER AND MAIN. CONTACT DISTRICT REGARDING OTHER SITUATIONS.
- SEE PID-05 FOR SPECIFICS ON ACCEPTABLE MATERIALS AND OTHER DETAILS.



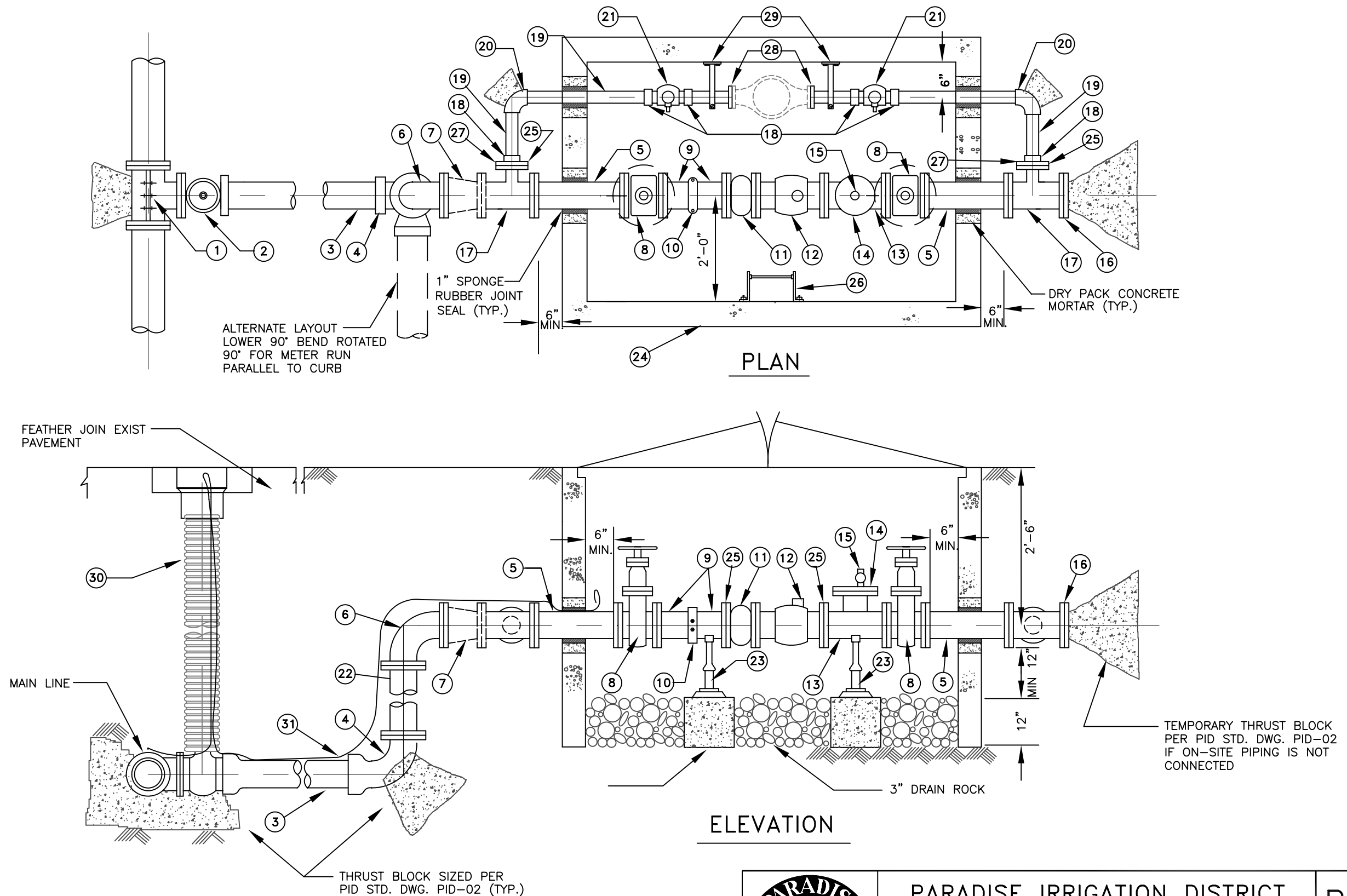
PARADISE IRRIGATION DISTRICT STANDARD DRAWING

MULTIPLE METER SERVICE INSTALLATION

PID-06

SHEET 1 OF 1

DRAWN
NE
CHECKED
JP
DATE
DECEMBER, 1999
NO SCALE



NOTES:

1. VULT SHOWN IS FOR PLANTER USE ONLY. FOR TRAFFIC LOADING AND OTHER REQUIREMENTS, CONTACT DISTRICT REPRESENTATIVE.
2. VULT COVER TO BE SET TO CONFORM TO PLANTER GRADE. SURROUNDING GROUND SHALL DRAIN AWAY FROM VULT.



**PARADISE IRRIGATION DISTRICT
STANDARD DRAWING**

3" & 4" METER INSTALLATION

PID-07

SHEET 1 OF 2

DRAWN
NE

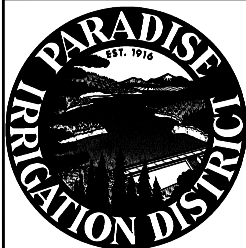
CHECKED
JP

DATE
JANUARY, 2001

NO SCALE

MATERIALS

<u>ITEM</u>	<u>QUANTITY</u>	<u>DESCRIPTION</u>
①	1 EACH	— SIZE X 4" TAPPING SLEEVE (USE PUSH-ON X FLG. TEE IF HOT TAP IS NOT REQUIRED).
②	1 EACH	— 4" FLG. X FLG. TAPPING VALVE (USE RW OR GATE VALVE IF HOT TAP IS NOT REQUIRED).
③	AS REQ'D	— 4" PVC PIPE OR D.I. PIPE LATERAL, PUSH-ON JOINTS
④	1 EACH	— 4" D.I. 90° ELL, PUSH-ON X FLG.
⑤	2 EACH	— FLG. x FLG. D.I. SPOOL - METER SIZE X 2'-6"
⑥	1 EACH	— 4" D.I. 90° ELL FLG. X FLG.
⑦	1 EACH	— 4" X 3" D.I. REDUCER FLG. X FLG. (FOR 3" SERVICE ONLY)
⑧	2 EACH	— RW OR GATE VALVE FLG. X FLG. W/HAND WHEEL
⑨	2 EACH	— FLG. X GROOVED END D.I. SPOOL, 6" LENGTH
⑩	1 EACH	— GROOVED-END COUPLING
⑪	1 EACH	— STRAINER
⑫	1 EACH	— 3" OR 4" METER, SUPPLIED BY DISTRICT
⑬	1 EACH	— METER SIZE X 6" D.I. TEE - FLANGED
⑭	1 EACH	— METER-SIZE D.I. COMPANION FLANGE TAPPED FOR 2" I.P.
⑮	1 EACH	— 2" CORPORATION STOP - M.I.P. X M.I.P.
⑯	1 EACH	— D.I. BLIND FLANGE
⑰	2 EACH	— METER SIZE FLANGED D.I. TEE
⑱	6 EACH	— ADAPTER - 2" M.I.P. BY S.J.
⑲	AS REQ'D	— 2" COPPER TUBING
⑳	2 EACH	— 2" 90° ELBOW - S.J. X S.J.
㉑	1 EACH	— 2" BALL VALVE WITH LOCKING WING - F.I.P. X F.I.P.
㉒	1 EACH	— 4" D.I. SPOOL - FLG. X FLG. (IF REQUIRED)
㉓	2 EACH	— ADJUSTABLE GALV. PIPE SUPPORT.
㉔	1 EACH	— PRECAST CONCRETE VAULT (5'-0" WIDE X 6'-6" LONG X 5'-0" HIGH) WITH SPRING ASSIST HINGED DIAMOND PLATE ALUMINUM COVER AND RECESSED LOCKING HASP. PROVIDE 6" X 12" HINGED READING LID INSTALLED OVER METER REGISTER.
㉕	4 EACH	— BOLT AND FLANGE INSULATING KIT
㉖	1 EACH	— GALV. STEEL LADDER (ALHAMBRA FOUNDRY A3400) W/LADDER - UP AND S.S. ANCHOR BOLTS.
㉗	2 EACH	— METER SIZE BRONZE COMPANION FLANGE WITH 2" THREADED I.P. OUTLET
㉘	2 EACH	— 2" ELLIPTICAL METER FLANGE (SPACING AS REQUIRED FOR 2" BYPASS METER)
㉙	2 EACH	— 2" PIPE SUPPORT
㉚	AS REQ'D	— CORRUGATED PLASTIC CAN STOCK
㉛	AS REQ'D	— NO. 12 AWG SOLID COPPER WIRE W/TYPE UF INSULATION



PARADISE IRRIGATION DISTRICT STANDARD DRAWING

3" & 4" METER INSTALLATION

PID-07

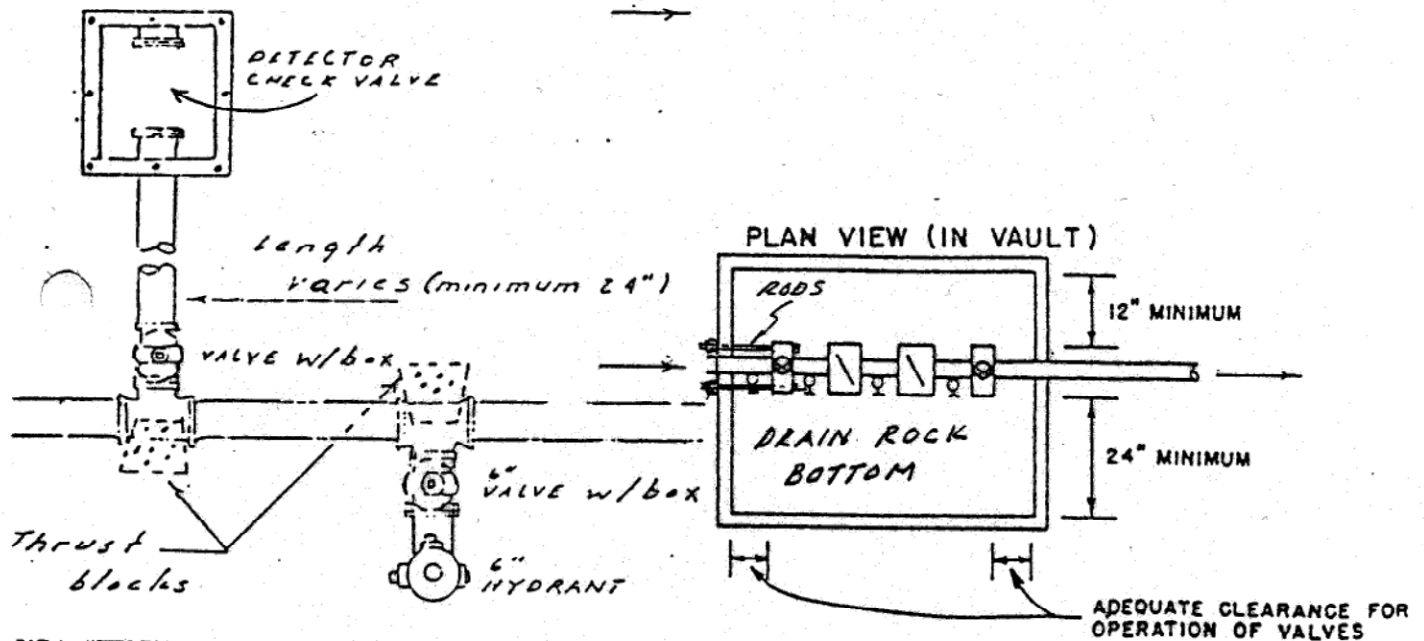
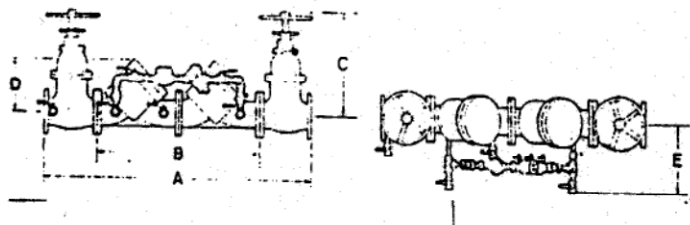
SHEET 2 OF 2

DRAWN NE	CHECKED JP
DATE JANUARY, 2001	
NO SCALE	

DOUBLE CHECK DETECTOR ASSEMBLY 4" through 10"

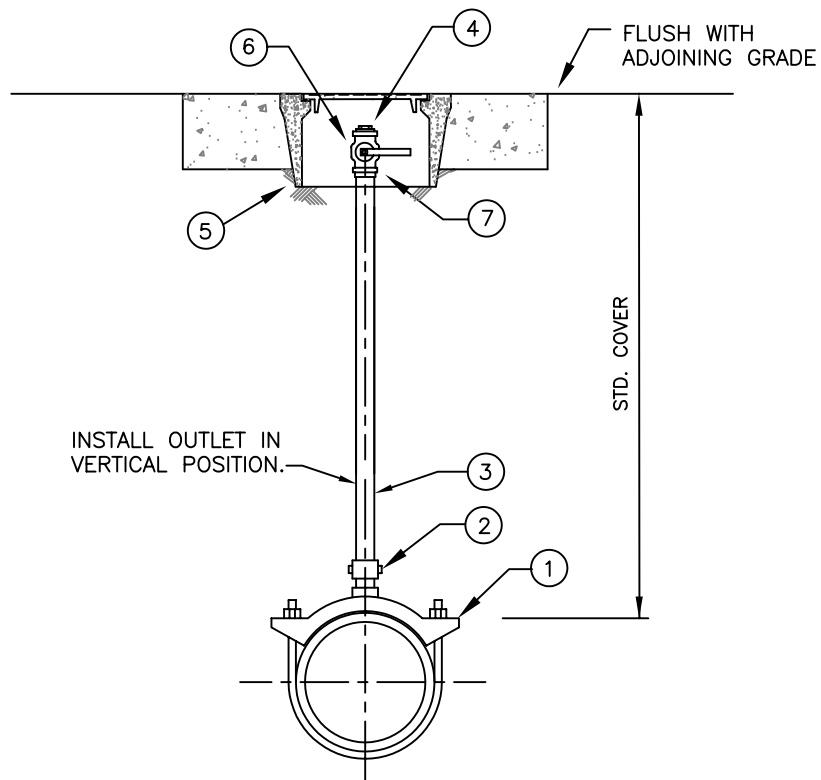
Dimensions and Weights

SIZE	A	B	C	D	E	NET WT (LBS.)	NET WT.(LG.)
4"	50 ⁷ / ₁₆ "	32 ³ / ₁₆ "	23 ³ / ₄ "	11"	15"	499	196.3
6"	55 ¹ / ₁₆ "	38 ³ / ₁₆ "	32 ³ / ₁₆ "	14"	16"	812	308.3
8"	69 ³ / ₁₆ "	46 ¹ / ₁₆ "	41 ¹ / ₈ "	18"	17"	1307	492.9
10"	84 ³ / ₁₆ "	58 ¹ / ₁₆ "	50 ¹ / ₈ "	22"	20"	1767	651.5



BACK FLOW PROTECTION-FIRE SYSTEMS

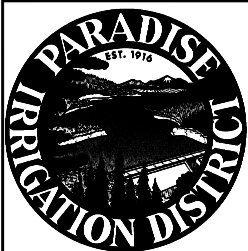
PARADISE IRRIGATION DISTRICT-STANDARD 08



ITEM
NO

MATERIALS

- ① DOUBLE S.S. STRAP DUCTILE IRON SERVICE SADDLE W/ I.P. OUTLET
- ② BRONZE CORPORATION STOP, M.I.P. THREAD X COMPRESSION OR FLARE
- ③ TYPE "K" SOFT COPPER TUBING
- ④ BRASS M.I.P. PLUG
- ⑤ CONCRETE VALVE BOX W/ CAST IRON LID, SET IN CONCRETE COLLAR
- ⑥ BRASS FULL PORT BALL VALVE (W/ S.S. BALL) WATTS OR EQUAL
- ⑦ ADAPTER, M.I.P. X FLARE OR COMPRESSION



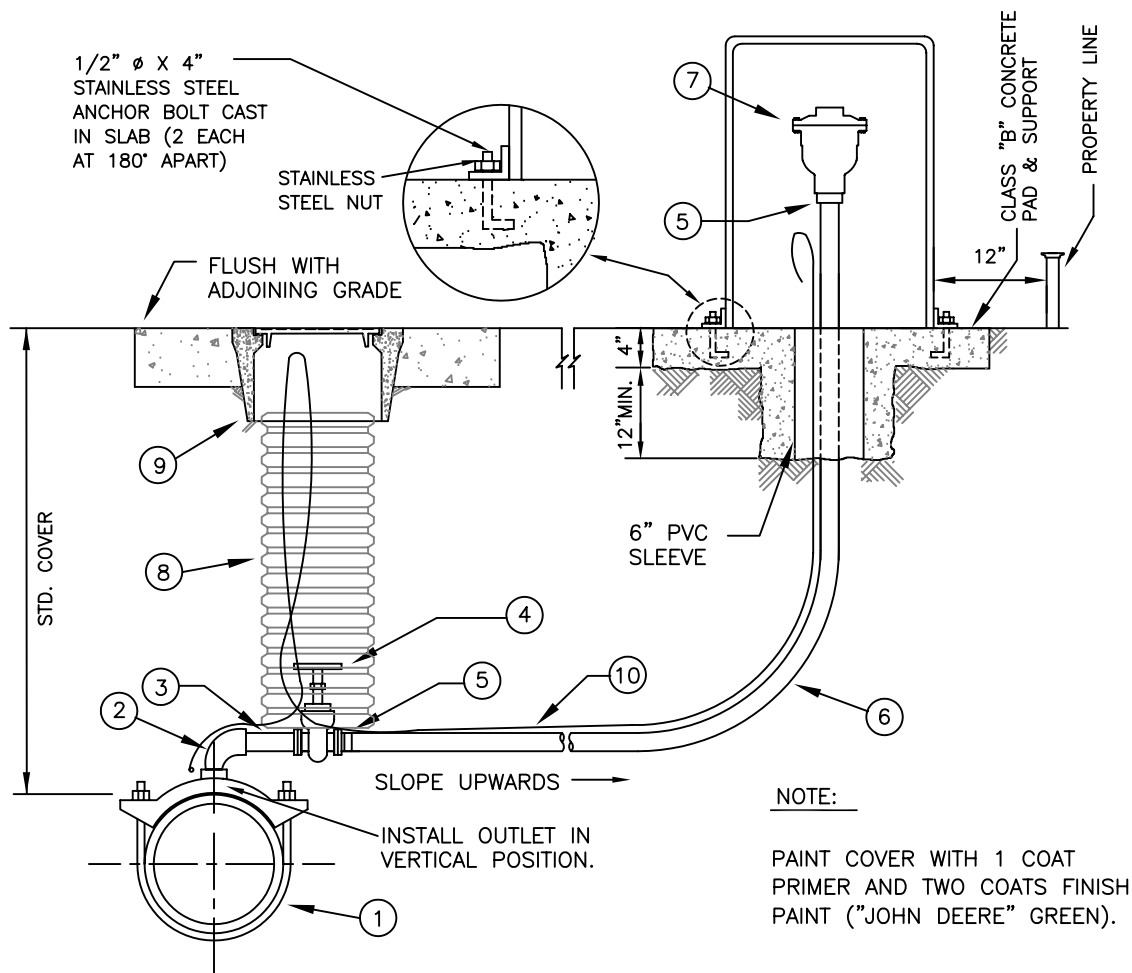
PARADISE IRRIGATION DISTRICT STANDARD DRAWING

MANUAL AIR VALVE ASSEMBLY

PID-09

SHEET 1 OF 1

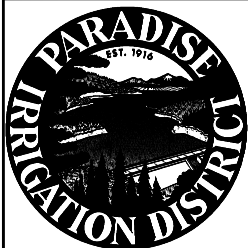
DRAWN NE CHECKED JP
DATE
DECEMBER, 1999
NO SCALE



ITEM
NO

MATERIALS

- ① DOUBLE S.S. STRAP DUCTILE IRON SERVICE SADDLE W/ I.P. OUTLET
- ② BRASS OR BRONZE STREET ELBOW
- ③ BRASS OR BRONZE NIPPLE
- ④ BRONZE GATE VALVE
- ⑤ ADAPTER, M.I.P. THREAD X FLARE OR COMPRESSION
- ⑥ TYPE "K" SOFT COPPER TUBING
- ⑦ AIR AND VACUUM VALVE, CRISPIN SERIES AL
- ⑧ CORRUGATED PLASTIC CAN STOCK
- ⑨ CONCRETE VALVE BOX W/ CAST IRON LID, SET IN CONCRETE COLLAR
- ⑩ NO. 12 AWG SOLID COPPER WIRE W/TYPE UF INSULATION



PARADISE IRRIGATION DISTRICT STANDARD DRAWING

AIR RELEASE & VACUUM RELIEF VALVE ASSEMBLY

PID-10

SHEET 1 OF 1

DRAWN
NE

CHECKED
JP

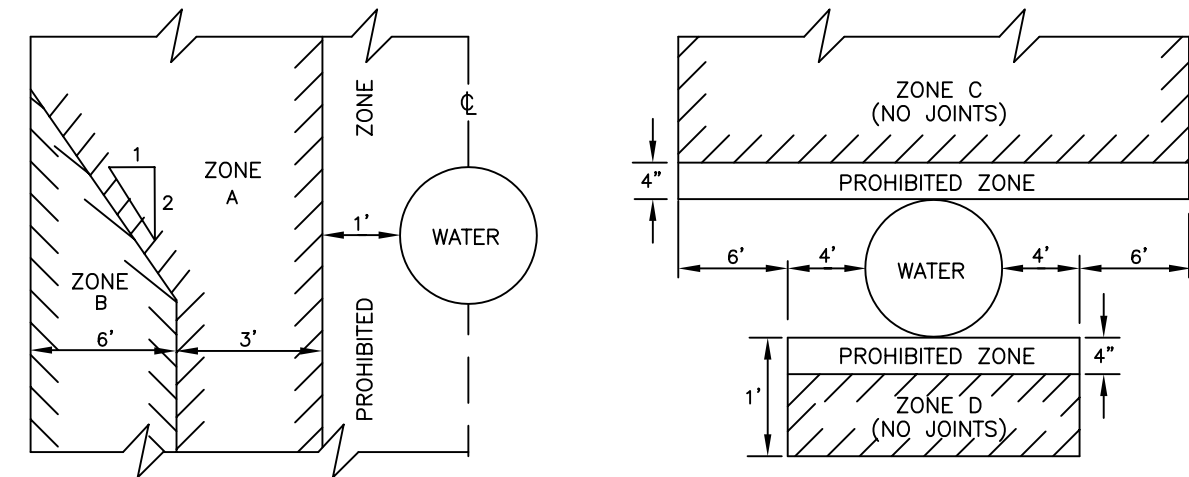
DATE
DECEMBER, 1999

NO SCALE

BASIC SEPARATION STANDARDS

- 1. PARALLEL CONSTRUCTION: THE HORIZONTAL DISTANCE BETWEEN PRESSURE POTABLE WATER MAINS AND SEWER LINES SHALL BE AT LEAST 10 FEET.
- 2. PERPENDICULAR CONSTRUCTION (CROSSING): PRESSURE WATER MAINS SHALL BE AT LEAST ONE FOOT ABOVE SANITARY SEWER LINES WHERE THESE LINES MUST CROSS.
- 3. SPECIAL PROVISIONS: ALTERNATIVE CONSTRUCTION CRITERIA WHERE THE BASIC SEPARATION STANDARDS CANNOT BE ATTAINED ARE SHOWN BELOW:

SITUATION: LOCATION OF NEW SEWER LINES TO EXISTING WATER LINES



PARALLEL CONSTRUCTION PERPENDICULAR CROSSING

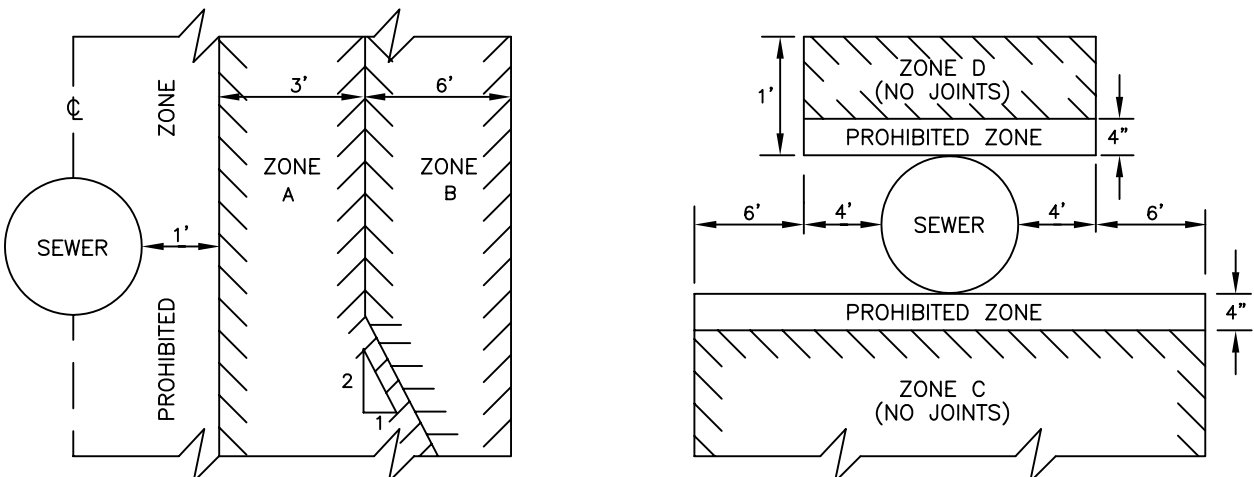
IF ANY SEWER PIPELINES ARE TO BE CONSTRUCTED WITHIN ANY OF THE ABOVE INDICATED ZONES, SPECIAL CONSTRUCTION SHALL BE REQUIRED AS DESCRIBED BELOW.

ZONE	SEWER
A	DO NOT LOCATE ANY PARALLEL SEWER LINES IN THIS AREA WITHOUT STATE AND LOCAL HEALTH DEPARTMENT APPROVAL.
B	USE VCP OR DIP WITH COMPRESSION JOINTS
C	USE DIP WITH MECHANICAL JOINTS OR CLASS 200 PVC – AWWA C900
D	USE DIP OR CLASS 200 PVC – AWWA C900

GENERAL NOTES

- 1. NO PIPE JOINTS SHALL BE PERMITTED WITHIN ZONE D. IT IS THE INTENT OF THESE SPECIFICATIONS THAT NO JOINTS SHALL OCCUR WITHIN ZONE C. IF THAT CANNOT BE ACCOMPLISHED, THE NEW PIPELINE SHALL BE ENCASED IN CONCRETE FOR THE FULL LENGTH OF ZONE C. ENCASEMENT SHALL BE PER STD. DWG. PID-11, TYPE "B".
- 2. ALL D.I.P. MUST HAVE HOT DIP BITUMINOUS COATING AND ALL CLASS 200 PVC MUST MEET DR-14 PER AWWA C900 OR EQUIVALENT.
- 3. SEWER FORCE MAINS SHALL NOT BE PERMITTED IN ZONES A THROUGH D.
- 4. WHERE CROSSINGS ARE NOT PERPENDICULAR, HORIZONTAL SPACING REQUIREMENTS SHALL BE MEASURED ALONG A LINE PERPENDICULAR TO THE WATER MAIN.
- 5. THE CONSTRUCTION CRITERIA APPLY TO HOUSE LATERALS THAT CROSS ABOVE A PRESSURE WATER MAIN BUT NOT TO THOSE HOUSE LATERALS THAT CROSS BELOW A PRESSURE WATER MAIN.

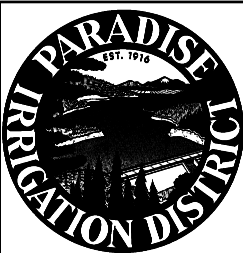
SITUATION: LOCATION OF NEW WATER LINES TO EXISTING SEWER LINES



PARALLEL CONSTRUCTION PERPENDICULAR CROSSING

IF ANY WATER PIPELINES ARE TO BE CONSTRUCTED WITHIN ANY OF THE ABOVE INDICATED ZONES, SPECIAL CONSTRUCTION SHALL BE REQUIRED AS DESCRIBED BELOW.

ZONE	POTABLE WATER
A	DO NOT LOCATE ANY PARALLEL DOMESTIC WATER MAIN IN THIS AREA WITHOUT STATE AND LOCAL HEALTH DEPARTMENT APPROVAL.
B	USE DIP OR CLASS 200 PVC – AWWA C900
C	USE DIP OR CLASS 200 PVC – AWWA C900
D	USE DIP OR CLASS 200 PVC – AWWA C900

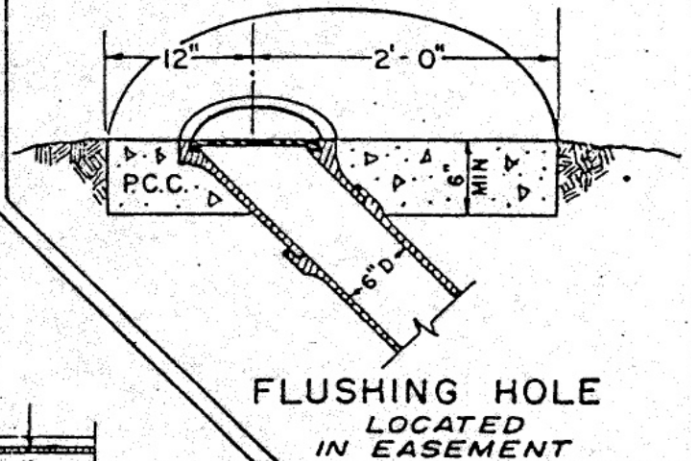
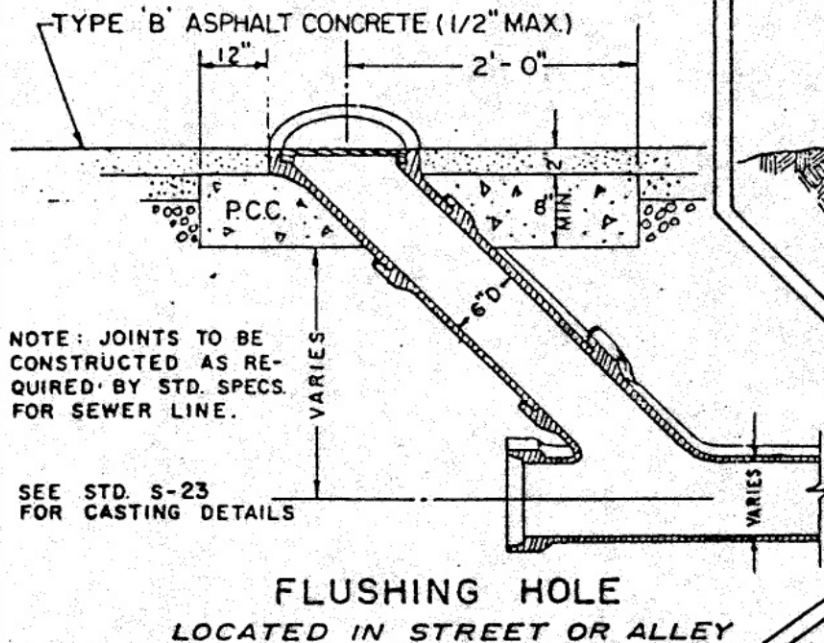
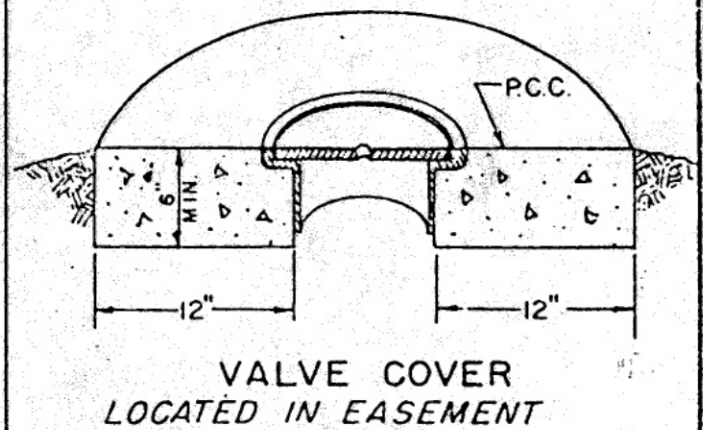
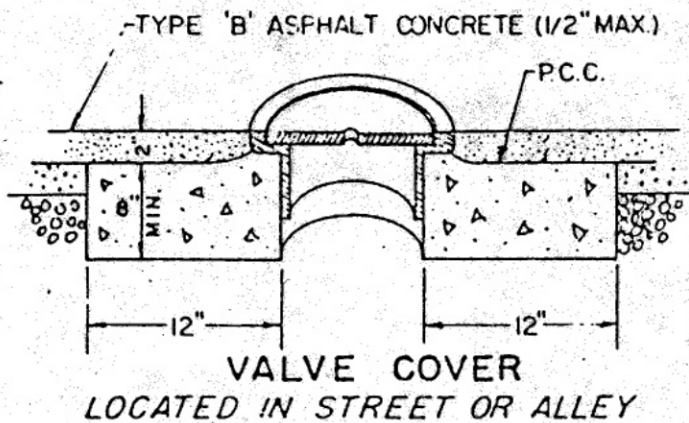


PARADISE IRRIGATION DISTRICT
STANDARD DRAWING

STATE HEALTH DEPT. EXCEPTIONS TO BASIC
SEPARATION STANDARDS FOR
POTABLE WATER AND SEWER PIPELINES

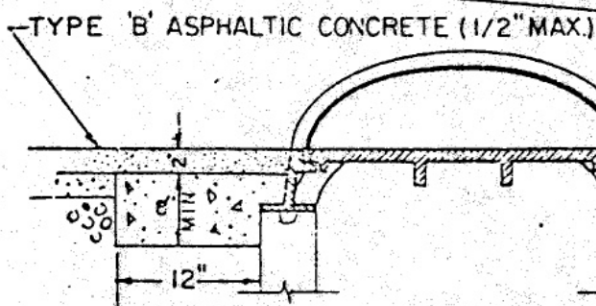
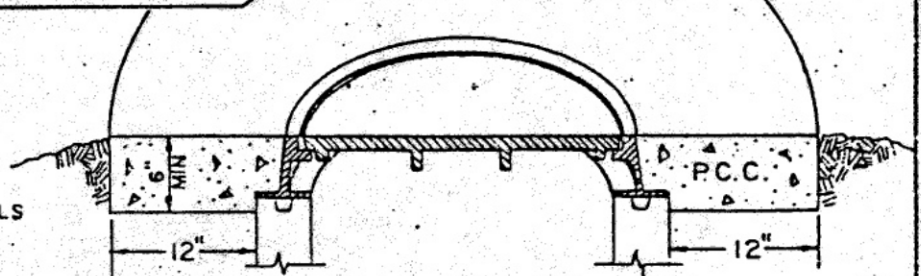
PID-11
SHEET 1 OF 1

DRAWN NE
CHECKED JP
DATE
DECEMBER, 1999
NO SCALE



MANHOLE FRAME & COVER LOCATED IN EASEMENT

SEE STD. S-24 FOR CASTING DETAILS



MANHOLE FRAME & COVER LOCATED IN STREET OR ALLEY

COUNTY OF BUTTE

DEPARTMENT OF PUBLIC WORKS

TITLE

TYPICAL METHOD FOR
SETTING APPURTENANCES

STANDARD NO.

S-22

SCALE : NONE

APPENDIX E

PROJECT ENVIRONMENTAL IMPACT CHECKLISTS

Appendix G

Environmental Checklist Form

1. Project title: Water Main Replacement on Butte View Terrace, Edgewood Lane, Friendly Way, Pearson Road, and Stark Lane. PHASE 1
2. Lead agency name and address:
PARADISE IRRIGATION DISTRICT
P.O. Box 2409
Paradise, CA 95967-2409
3. Contact person and phone number: Ray Auerbach, Manager, Phone: 530-877-4971
4. Project location: Butte View Terrace, from Pearson Road north approximately 1,350 feet to the end of road; Edgewood Lane, from Sunny Acres Road south approximately 1,500 feet to a point approximately 150 feet south of Marston Lane; Friendly Way, from Honey Run Road southeast approximately 625 feet to the end of road; Pearson Road, from Recreation Drive east approximately 1,400 feet to Clark Road; and Stark Lane from Pentz Road east approximately 1,450 feet to the end of the existing water main.
5. Project sponsor's name and address:

6. General plan designation: _____
7. Zoning: _____
8. Description of project: (Describe the whole action involved, including but not limited to later phases of the project, and any secondary, support, or off-site features necessary for its implementation.)
Installation of 1,350 feet of 8-inch C-900 PVC pipe, new fire hydrants and water meter services to replace existing pipeline and facilities on Butte View Terrace from Pearson Road north; installation of 1,500 feet of 8-inch C-900 PVC pipe, new fire hydrants and water meter services to replace existing pipeline and facilities on Edgewood Lane from Sunny Acres Road south; installation of 625 feet of 6-inch C-900 PVC pipe, new fire hydrants and water meter services to replace existing pipeline and facilities on Friendly Way from Honey Run Road southeast; installation of 1,400 feet of 6-inch C-900 PVC pipe, new fire hydrants and water meter services to replace existing pipeline and facilities on Pearson Road from Recreation Drive to Clark Road; and installation of 1,450 feet of 8-inch C-900 PVC pipe, new fire hydrants and water meter services to replace existing pipeline and facilities on Stark Lane from Pentz Road east.
9. Surrounding land uses and setting: Briefly describe the project's surroundings:
Single family residential

10. Other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement.)
Town of Paradise

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

- | | | |
|--|---|---|
| <input type="checkbox"/> Aesthetics | <input type="checkbox"/> Agriculture Resources | <input type="checkbox"/> Air Quality |
| <input type="checkbox"/> Biological Resources | <input type="checkbox"/> Cultural Resources | <input type="checkbox"/> Geology/Soils |
| <input type="checkbox"/> Hazards & Hazardous Materials | <input type="checkbox"/> Hydrology/Water Quality | <input type="checkbox"/> Land Use/Planning |
| <input type="checkbox"/> Mineral Resources | <input type="checkbox"/> Noise | <input type="checkbox"/> Population/Housing |
| <input type="checkbox"/> Public Services | <input type="checkbox"/> Recreation | <input type="checkbox"/> Transportation/Traffic |
| <input type="checkbox"/> Utilities/Service Systems | <input type="checkbox"/> Mandatory Findings of Significance | |

DETERMINATION: (To be completed by the Lead Agency)

On the basis of this initial evaluation:

☒ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

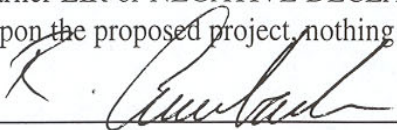
☐ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature



Date

11-25-02

Ray Auerbach, Manager

Printed Name

For

QUESTION:

Issues:

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
I. AESTHETICS...Would the project:				
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
II. AGRICULTURE RESOURCES: In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
III. AIR QUALITY: Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
a) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Expose sensitive receptors to substantial pollutant concentrations? (The District will be using heavy construction equipment including backhoes and pavement breakers during the project. As with such construction projects a temporary increase in dust will occur. Road areas will be watered to reduce any dust concentrations.)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
IV. BIOLOGICAL RESOURCES... Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
approved local, regional, or state habitat conservation plan?				
V. CULTURAL RESOURCES... Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in § 15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
VI. GEOLOGY AND SOILS... Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste disposal systems where sewers are not available for the disposal of waste water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

VII. HAZARDS AND HAZARDOUS MATERIALS...

Would the project:

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code § 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

(The District will be installing a pipeline in the various streets and could impair traffic flows. District personnel, trained in flagging and traffic control, will be controlling and monitoring traffic flow. In the event of a major emergency requiring use of the streets the District will accomplish the following:

1) Daily prior to start of work notify the Paradise Police dispatcher of the work location and traffic control measures, including hours of proposed work. 2) Be prepared to control emergency traffic flow through the work zone as needed. 3) Be prepared to immediately terminate work, backfill and repair road section to allow the flow of traffic to proceed uninhibited.

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
VIII. HYDROLOGY AND WATER QUALITY...				
Would the project:				
a) Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially alter the existing drainage pattern of the site or area, including through the alternation of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in substantial flooding on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
j) Inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
IX. LAND USE AND PLANNING... Would the project:				
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
a) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program. Or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with any applicable habitat conservation plan or natural community conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
X. MINERAL RESOURCES... Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
XI. NOISE... Would the project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

(The District will be using heavy construction equipment including backhoes and pavement breakers during the project. As with all construction projects noise levels will increase temporarily during

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
the hours of construction. Construction will occur during the hours of 7:30 a.m. to 3:00 p.m., which is in compliance with the noise ordinance of the Town of Paradise.)				
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
XII. POPULATION AND HOUSING... Would the project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or directly (for example, through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(The District is installing a larger main in an area currently being served water. The larger main is being installed to meet required fire flow demands for the area and is not an extension of the system. Property owners may, at the present time, improve their properties within the parameters set by the Town of Paradise. Current low fire flows may be mitigated by the installation of water storage tanks, wells, etc., to satisfactorily comply with Fire Department requirements. A larger main does not necessarily increase a property owner's ability to improve their property.)				
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
XIII. PUBLIC SERVICES...				
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Fire Protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
XIV. RECREATION...				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
XV. TRANSPORTATION/TRAFFIC... Would the project:				
a) Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways? (Temporary interruptions in traffic flow may occur, but will not be of significant duration. District personnel, trained in flagging and traffic control, will be controlling and monitoring traffic flow. Construction will occur during the hours of 7:30 a.m. to 3:00 p.m.)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Result in inadequate parking capacity?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
XVI. UTILITIES AND SERVICE SYSTEMS...				
Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Comply with federal, state, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
XVII. MANDATORY FINDINGS OF SIGNIFICANCE:				
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat or a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?				
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Appendix G

Environmental Checklist Form

1. Project title: Water Main Replacement on Peck Lane, Pentz Road and Waggoner Road. PHASE 2
2. Lead agency name and address:
PARADISE IRRIGATION DISTRICT
P.O. Box 2409
Paradise, CA 95967-2409
3. Contact person and phone number: Ray Auerbach, Manager, Phone: 530-877-4971
4. Project location: Peck Lane from Young Avenue south approximately 1,800 feet to Sylvan Way; Pentz Road from Wagstaff Road south approximately 1,300 feet to Stark Lane; and Waggoner Road from Lucky John Road east approximately 1,500 feet to the end of the existing water main.
5. Project sponsor's name and address:

6. General plan designation: _____
7. Zoning: _____
8. Description of project: (Describe the whole action involved, including but not limited to later phases of the project, and any secondary, support, or off-site features necessary for its implementation.)
Installation of 1,800 feet of 6-inch C-900 PVC pipe, new fire hydrants and water meter services to replace existing pipeline and facilities on Peck Lane from Young Avenue to Sylvan Way; installation of 1,300 feet of 12-inch C-900 PVC pipe, new fire hydrants and water meter services to replace existing pipeline and facilities on Pentz Road from Wagstaff Road to Stark Lane; and installation of 1,500 feet of 6-inch PVC pipe, new fire hydrants and water meter services to replace existing pipeline and facilities on Waggoner Road from Lucky John Road east.

9. Surrounding land uses and setting: Briefly describe the project's surroundings:
Single family residential

10. Other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement.)
Town of Paradise

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

- | | | |
|--|---|---|
| <input type="checkbox"/> Aesthetics | <input type="checkbox"/> Agriculture Resources | <input type="checkbox"/> Air Quality |
| <input type="checkbox"/> Biological Resources | <input type="checkbox"/> Cultural Resources | <input type="checkbox"/> Geology/Soils |
| <input type="checkbox"/> Hazards & Hazardous Materials | <input type="checkbox"/> Hydrology/Water Quality | <input type="checkbox"/> Land Use/Planning |
| <input type="checkbox"/> Mineral Resources | <input type="checkbox"/> Noise | <input type="checkbox"/> Population/Housing |
| <input type="checkbox"/> Public Services | <input type="checkbox"/> Recreation | <input type="checkbox"/> Transportation/Traffic |
| <input type="checkbox"/> Utilities/Service Systems | <input type="checkbox"/> Mandatory Findings of Significance | |

DETERMINATION: (To be completed by the Lead Agency)

On the basis of this initial evaluation:

☒ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

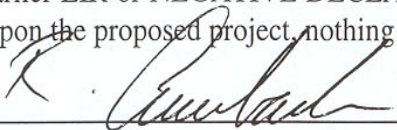
☐ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature



Ray Auerbach, Manager

Printed Name

Date

11-25-02

For

QUESTION:

Issues:

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
I. AESTHETICS...Would the project:				
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
II. AGRICULTURE RESOURCES: In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
III. AIR QUALITY: Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Violate any air quality standard or contribute substantially to	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
an existing or projected air quality violation?				
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Expose sensitive receptors to substantial pollutant concentrations? (The District will be using heavy construction equipment including backhoes and pavement breakers during the project. As with such construction projects a temporary increase in dust will occur. Road areas will be watered to reduce any dust concentrations.)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
IV. BIOLOGICAL RESOURCES... Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Conflict with the provisions of an adopted Habitat Conserva-				

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
tion Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
V. CULTURAL RESOURCES... Would the project:				
b) Cause a substantial adverse change in the significance of a historical resource as defined in § 15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
VI. GEOLOGY AND SOILS... Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste disposal systems where sewers are not available for the disposal of waste water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

VIII. HAZARDS AND HAZARDOUS MATERIALS...

Would the project:

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code § 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

(The District will be installing a pipeline in the various streets and could impair traffic flows. District personnel, trained in flagging and traffic control, will be controlling and monitoring traffic flow. In the event of a major emergency requiring use of the streets the District will accomplish the following:

1) Daily prior to start of work notify the Paradise Police dispatcher of the work location and traffic control measures, including hours of proposed work. 2) Be prepared to control emergency traffic flow through the work zone as needed. 3) Be prepared to immediately terminate work, backfill and repair road section to allow the flow of traffic to proceed uninhibited.

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h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
IX. HYDROLOGY AND WATER QUALITY...				
Would the project:				
a) Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially alter the existing drainage pattern of the site or area, including through the alternation of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in substantial flooding on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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failure of a levee or dam?				
j) Inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
IX. LAND USE AND PLANNING... Would the project:				
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program. Or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Conflict with any applicable habitat conservation plan or natural community conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
X. MINERAL RESOURCES... Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
XI. NOISE... Would the project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

(The District will be using heavy construction equipment including backhoes and pavement breakers during the project. As with all

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
construction projects noise levels will increase temporarily during the hours of construction. Construction will occur during the hours of 7:30 a.m. to 3:00 p.m., which is in compliance with the noise ordinance of the Town of Paradise.)				
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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XII. POPULATION AND HOUSING... Would the project:				
c) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or directly (for example, through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(The District is installing a larger main in an area currently being served water. The larger main is being installed to meet required fire flow demands for the area and is not an extension of the system. Property owners may, at the present time, improve their properties within the parameters set by the Town of Paradise. Current low fire flows may be mitigated by the installation of water storage tanks, wells, etc., to satisfactorily comply with Fire Department requirements. A larger main does not necessarily increase a property owner's ability to improve their property.)				
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
XIII. PUBLIC SERVICES...				
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Fire Protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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XIV. RECREATION...				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
XV. TRANSPORTATION/TRAFFIC... Would the project:				
a) Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways? (Temporary interruptions in traffic flow may occur, but will not be of significant duration. District personnel, trained in flagging and traffic control, will be controlling and monitoring traffic flow. Construction will occur during the hours of 7:30 a.m. to 3:00 p.m.)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Result in inadequate parking capacity?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
XVII. UTILITIES AND SERVICE SYSTEMS...				
Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Comply with federal, state, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

XVII. MANDATORY FINDINGS OF SIGNIFICANCE:

a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat or a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?				
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Appendix G

Environmental Checklist Form

1. Project title: Water Main Replacement on Azalea Lane, Central Park Drive, Cindy Lane, Copeland Road, Crestview Drive, Hayes Lane, Lancaster Drive, and Squire Lane. PHASE 3
2. Lead agency name and address:
PARADISE IRRIGATION DISTRICT
P.O. Box 2409
Paradise, CA 95967-2409
3. Contact person and phone number: Ray Auerbach, Manager, Phone: 530-877-4971
4. Project location: Azalea Lane and Cindy Lane from Azalea Lane and Bille Road north approximately 1,600 feet on Azalea Lane to Cindy Lane, thence along Cindy Lane east approximately 300 feet to Harvey Road; Central Park Drive from Maxwell Drive east approximately 2,500 feet to a point approximately adjacent 1043 Central Park Drive; Cindy Lane from Harvey Road east approximately 350 feet to Tabernacle Lane; Copeland Road from Elliott Road south approximately 1,400 feet to Nunneley Road; Crestview Drive from Oakmore Drive northeast approximately 1,200 feet to Valley View Drive; Hayes Lane from Oliver Road south approximately 450 feet to the end of the road; Lancaster Drive, from Bille Road north approximately 350 feet to Lancaster Drive; and Squire Lane from Bennett Road north approximately 450 feet to the end of the road.
5. Project sponsor's name and address:

6. General plan designation: _____
7. Zoning: _____
8. Description of project: (Describe the whole action involved, including but not limited to later phases of the project, and any secondary, support, or off-site features necessary for its implementation.)
Installation of 1,900 feet of 6-inch C-900 PVC pipe, new fire hydrants and water meter services to replace existing pipeline and facilities on Azalea Lane from Bille Road to Cindy Lane, and on Cindy Lane from Azalea Lane to Harvey Road; installation of 2,500 feet of 6-inch C900 PVC pipe, new fire hydrants and water meter services to replace existing pipeline and facilities on Central Park Drive from Maxwell Drive east; installation of 350 feet of 6-inch C-900 PVC pipe, new fire hydrants and water meter services to replace existing pipeline and facilities on Cindy Lane from Harvey Road to Tabernacle Lane; installation of 1,400 feet of 6-inch C-900 PVC pipe, new fire hydrants and water meter services to replace existing pipeline and facilities on Copeland Road from Elliott Road to Nunneley Road; installation of 1,200 feet of 8-inch PVC pipe, new fire hydrants and water meter services to replace existing pipeline and facilities on Crestview Drive from Oakmore Drive to Valley View Drive; installation of 450 feet of 6-inch C-900 PVC pipe, new fire hydrants and water meter services to replace existing pipeline and facilities on Hayes Lane from Oliver Road south, installation of 350 feet of 8-inch C-900 PVC pipe, new fire hydrants and water meter services to replace existing pipeline and facilities on Lancaster Drive from Bille Road to Lancaster Drive; and installation of 450 feet of 6-inch PVC pipe, new fire hydrants and water meter services to replace existing pipeline and facilities on Squire Lane from Bennett Road north.
9. Surrounding land uses and setting: Briefly describe the project's surroundings:
Single family residential
10. Other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement.)
Town of Paradise

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

- | | | |
|--|---|---|
| <input type="checkbox"/> Aesthetics | <input type="checkbox"/> Agriculture Resources | <input type="checkbox"/> Air Quality |
| <input type="checkbox"/> Biological Resources | <input type="checkbox"/> Cultural Resources | <input type="checkbox"/> Geology/Soils |
| <input type="checkbox"/> Hazards & Hazardous Materials | <input type="checkbox"/> Hydrology/Water Quality | <input type="checkbox"/> Land Use/Planning |
| <input type="checkbox"/> Mineral Resources | <input type="checkbox"/> Noise | <input type="checkbox"/> Population/Housing |
| <input type="checkbox"/> Public Services | <input type="checkbox"/> Recreation | <input type="checkbox"/> Transportation/Traffic |
| <input type="checkbox"/> Utilities/Service Systems | <input type="checkbox"/> Mandatory Findings of Significance | |

DETERMINATION: (To be completed by the Lead Agency)

On the basis of this initial evaluation:

☒ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

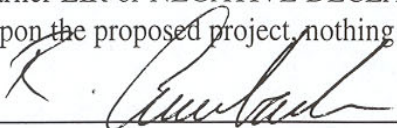
☐ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature



Ray Auerbach, Manager

Printed Name

Date

11-25-02

For

QUESTION:

Issues:

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
I. AESTHETICS... Would the project:				
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
II. AGRICULTURE RESOURCES: In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
III. AIR QUALITY: Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
e) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Expose sensitive receptors to substantial pollutant concentrations? (The District will be using heavy construction equipment including backhoes and pavement breakers during the project. As with such construction projects a temporary increase in dust will occur. Road areas will be watered to reduce any dust concentrations.)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
IV. BIOLOGICAL RESOURCES... Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
V. CULTURAL RESOURCES... Would the project:				
c) Cause a substantial adverse change in the significance of a historical resource as defined in § 15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
VI. GEOLOGY AND SOILS... Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
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property?

- | | | | | |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|
| e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste disposal systems where sewers are not available for the disposal of waste water? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|

IX. HAZARDS AND HAZARDOUS MATERIALS...

Would the project:

- | | | | | |
|--|--------------------------|--------------------------|-------------------------------------|-------------------------------------|
| a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code § 65962.5 and, as a result, would it create a significant hazard to the public or the environment? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

(The District will be installing a pipeline in the various streets and could impair traffic flows. District personnel, trained in flagging and traffic control, will be controlling and monitoring traffic flow. In the event of a major emergency requiring use of the streets the District will accomplish the following:

- 1) Daily prior to start of work notify the Paradise Police dispatcher of the work location and traffic control measures, including hours of proposed work.
- 2) Be prepared to control emergency traffic flow through the work zone as needed.
- 3) Be prepared to immediately terminate work, backfill and repair road

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
section to allow the flow of traffic to proceed uninhibited.				
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
X. HYDROLOGY AND WATER QUALITY...				
Would the project:				
a) Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially alter the existing drainage pattern of the site or area, including through the alternation of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in substantial flooding on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Expose people or structures to a significant risk of loss, injury				

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or death involving flooding, including flooding as a result of the failure of a levee or dam?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
j) Inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
IX. LAND USE AND PLANNING... Would the project:				
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program. Or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Conflict with any applicable habitat conservation plan or natural community conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
X. MINERAL RESOURCES... Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
XI. NOISE... Would the project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

(The District will be using heavy construction equipment including

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
backhoes and pavement breakers during the project. As with all construction projects noise levels will increase temporarily during the hours of construction. Construction will occur during the hours of 7:30 a.m. to 3:00 p.m., which is in compliance with the noise ordinance of the Town of Paradise.)				
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
XII. POPULATION AND HOUSING... Would the project:				
e) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or directly (for example, through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(The District is installing a larger main in an area currently being served water. The larger main is being installed to meet required fire flow demands for the area and is not an extension of the system. Property owners may, at the present time, improve their properties within the parameters set by the Town of Paradise. Current low fire flows may be mitigated by the installation of water storage tanks, wells, etc., to satisfactorily comply with Fire Department requirements. A larger main does not necessarily increase a property owner's ability to improve their property.)				
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
XIII. PUBLIC SERVICES...				
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Fire Protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
XIV. RECREATION...				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
XV. TRANSPORTATION/TRAFFIC... Would the project:				
a) Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways? (Temporary interruptions in traffic flow may occur, but will not be of significant duration. District personnel, trained in flagging and traffic control, will be controlling and monitoring traffic flow. Construction will occur during the hours of 7:30 a.m. to 3:00 p.m.)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Result in inadequate parking capacity?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
XVIII. UTILITIES AND SERVICE SYSTEMS...				
Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Comply with federal, state, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
XVII. MANDATORY FINDINGS OF SIGNIFICANCE:				
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat or a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?				
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

APPENDIX F

NPDES DEWATERING PERMIT



Justin H. Hickox
Secretary for
Environmental
Protection

California Regional Water Quality Control Board Central Valley Region

Robert Schneider, Chair



Gray Davis
Governor

Sacramento Main Office

Internet Address: <http://www.swrcb.ca.gov/~rwqcb5>
3443 Routier Road, Suite A, Sacramento, California 95827-3003
Phone (916) 255-3000 • FAX (916) 255-3015

*cc: Rick Jordan (2pp)
E. San Joaquin Hills*
RECEIVED

NOV 15 2001

PARADISE IRRIGATION
DIST

13 November 2001

Mr. Ray Auerbach
Paradise Irrigation District Manager
P.O. Box 2409
Paradise, CA 95967

NOTIFICATION OF APPLICABILITY OF GENERAL WASTE DISCHARGE REQUIREMENTS ORDER NO. 5-00-175 (NPDES NO. CAG995001), PARADISE IRRIGATION DISTRICT, NEW MUNICIPAL SUPPLY WELL, E TANK WELL, PARADISE, BUTTE COUNTY

You have submitted a complete *Notice of Intent* for the above referenced project. It is our determination that the project meets the required conditions to be approved under the *General Order for Dewatering and Other Low Threat Discharges To Surface Waters, No. 5-00-175 (General Order)*. Enclosed is a copy of the General Order. All requirements contained in the General Order will be applicable to your project. You are hereby assigned **General Order No. 5-01-17568** for the discharge of ground water during development and testing of the new municipal water well.

General Order No. 5-01-175 prescribes minimum wastewater monitoring requirements for compliance. Please note that the Monitoring and Reporting Program sets forth minor requirements; and that additional monitoring may be necessary if petroleum hydrocarbons are encountered.

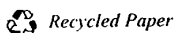
PROJECT LOCATION

The project is located on Nunnely Road near the cross street of Clark Road in the Town of Paradise, T22N R3E, Section 23, MDB&M.

PROJECT DESCRIPTION

The project includes temporary discharge of ground water for development and testing of a new municipal water supply well. The intermittent discharge of 1000 GPM will be discharged to Little Dry Creek, a tributary to the Sacramento River.

California Environmental Protection Agency



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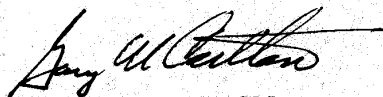
The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our Web-site at <http://www.swrcb.ca.gov/>

APP F-1

GENERAL INFORMATION

1. The project activities shall be in accordance with the requirements contained in the General Order and in accordance with the information submitted in the Notice of Intent.
2. The required annual fee as specified in the annual billing you will receive from the State Water Resources Control Board shall be submitted until this Notice of Applicability is officially revoked.
3. You must comply with the Monitoring and Reporting Program (Attachment B, Water Suppliers' Pollution Prevention and Monitoring and Reporting Plan). Quarterly monitoring results must be submitted to the Regional Board's Redding office by the 20th day of the month following each calendar quarter.
4. Failure to abide by the conditions of the General Order could result in an enforcement action as authorized by the provisions of the California Water Code.

If you have any questions or comments regarding this permit, please contact Stacy Matthews of my staff at (530) 224-4993, or 415 Knollcrest Drive Suite 100, Redding, California, 96002.



GARY M. CARLTON
Executive Officer

Enclosure: General Order No. 5-00-175
Standard Provisions

cc: U.S. Environmental Protection Agency, Region 9, San Francisco
U.S. Fish and Wildlife Service, Sacramento
Department of Fish and Game, Region 2, Ranch Cordova
Department of Health Services, Office of Drinking Water, Redding
Department of Water Resources, Northern District, Red Bluff
Ms. Frances McChesney, OCC, SWRCB, Sacramento
Mr. James Maughan, DWQ, SWRCB, Sacramento
Ms. Della Kramer, RWQCB, R5, Sacramento

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. 5-00-175

NPDES NO. CAG995001

WASTE DISCHARGE REQUIREMENTS
GENERAL ORDER FOR
DEWATERING AND OTHER LOW THREAT DISCHARGES
TO SURFACE WATERS

The California Regional Water Quality Control Board, Central Valley Region, (hereafter Board) finds that:

1. Miscellaneous public and private businesses (hereafter Discharger) often need to discharge clean or relatively pollutant-free wastewater that poses little or no threat to water quality. This General Permit covers the discharge of certain categories of these discharges to waters of the United States.
2. The following discharges may be covered by this permit provided they do not contain significant quantities of pollutants and they are either (1) four months or less in duration, or (2) the average dry weather discharge does not exceed 0.25 mgd:
 - a. Well development water
 - b. Construction dewatering
 - c. Pump/well testing
 - d. Pipeline/tank pressure testing
 - e. Pipeline/tank flushing or dewatering
 - f. Condensate discharges
 - g. Water supply system discharges
 - h. Miscellaneous dewatering/low threat discharges

These wastewaters may be produced and treated on a continuous or batch basis.

3. Individual waste discharge requirements are presently adopted for these discharges, necessitating approximately four or more months of lead time for the project. Adoption of this general permit will significantly reduce the time spent on dewatering and other low water quality threat projects.
4. Water quality characteristics most likely of concern for these discharges include settleable material, suspended material, color, turbidity and chlorine. Dischargers should hire professional

NPDES WASTE DISCHARGE REQUIREMENTS GENERAL ORDER NO. 5-00-175
LOW THREAT AND DEWATERING WASTEWATER DISCHARGES
TO SURFACE WATERS

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engineers to assure pollutants will be properly treated prior to discharge if there is any doubt about the ability for continuous compliance with requirements.

5. This permit is intended to regulate dewatering and other low water quality threat discharges identified in Finding No. 2. It is not intended for ground water cleanup projects or to regulate discharges that contain acute or chronic toxicity, chemical or organic constituents, bacteria, herbicides, pesticides, oil and grease, radioactivity, salinity or temperature that may adversely impact beneficial uses or exceed any water quality objective or standard.

There are many sites of ground water contamination in the Central Valley. The contamination may have been caused by many factors including industrial activity, underground leaking tanks and farming practices. This permit is not intended for use on groundwater where such contamination exists even if the project and/or proponent has no connection with the contamination.

6. Water suppliers may have numerous intentional and unintentional releases of fresh water to surface waters and surface water drainage courses due to many factors including system failures, pressure releases, and pipeline/tank flushing and dewatering. For the purpose of this Order these multiple discharges shall be considered a project. This General Permit may serve as waste discharge requirements for such public and private water suppliers including Irrigation Districts, Water Districts and Water Agencies. A Pollution Prevention and Monitoring and Reporting Plan may be developed by the Discharger as established in Attachment B for approval by the Regional Board Executive Officer. Compliance with this General Permit requires removal of chlorine and other constituents normally found in these discharges to provide protection of downstream beneficial uses including fish and other aquatic life.
7. The Discharger agrees immediately to stop any discharge authorized by these requirements in the event there is a violation, or threatened violation, of this permit or if the Regional Board Executive Officer so orders. The Discharger shall notify the Board as soon as is reasonably possible by telephone, with a written confirmation within two weeks, when a violation of this Order is known to exist. The discharge may not be resumed until authorized by the Executive Officer.
8. The Board may prescribe individual waste discharge requirements for any discharge. If individual waste discharge requirements are issued for a discharge, the applicability of this General Permit to the discharge is immediately terminated.
9. This Order shall apply to the individuals, municipalities or companies discharging and to individual property owners and/or operators (collectively Discharger) which have submitted a Notice of Intent (NOI) and appropriate fee for coverage under this General Order. Dischargers that meet the standards of this Order and who submit a completed NOI and appropriate fee are authorized to discharge under the terms and conditions of this General Permit unless individual waste discharge requirements are issued or the discharge is prohibited.

NPDES WASTE DISCHARGE REQUIREMENTS GENERAL ORDER NO. 5-00-175
LOW THREAT AND DEWATERING WASTEWATER DISCHARGES
TO SURFACE WATERS

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10. A separate NOI and filing fee must be filed with the Regional Board for each system owner or project to be eligible for coverage under this Order. The NOI form (Attachment A) must be completed in order to obtain coverage under this permit.
11. The U.S. Environmental Protection Agency (EPA) and the Board generally classify this type of discharge as a minor discharge. If an individual discharge is classified as a major discharge, it will not be covered by this General Permit.
12. This Order does not preempt or supersede the authority of the State Department of Fish and Game or local agencies to prohibit, restrict, or control the discharge of wastewater subject to their control.
13. On 17 April 1997, the State Water Resources Control Board adopted Waste Discharge Requirements, Order No. 97-03-DWQ, NPDES General Permit No. CAS000001 for the regulation of storm water discharges associated with industrial activities. Order No. 97-03-DWQ, Special Condition D-1, authorizes non-storm water discharges including fire hydrant flushing, potable water sources, including potable water related to the operation, maintenance, or testing of potable water systems, drinking fountain water, atmospheric condensates including refrigeration, air conditioning, and compressor condensate, irrigation drainage, landscape watering, springs, groundwater, foundation or footage drainage, sea water infiltration and discharges from fire fighting activities. Order No. 97-03-DWQ, Special Condition No. D-1-c, allows the Regional Board to establish additional monitoring and reporting requirements for these storm water discharges. The Board finds that the additional monitoring and reporting requirements and discharge limitations contained in this Order are necessary to assure compliance with water quality objectives and standards and that coverage under this Order is therefore necessary for the following discharges listed in Order No. 97-03-DWQ, Special Condition No. D-1: fire hydrant flushing; potable water sources, including potable water related to the operation, maintenance, or testing of potable water systems, atmospheric condensates including refrigeration, air conditioning and compressor condensate, and groundwater dewatering systems.

On 19 August 1999, the State Water Resources Control Board adopted Waste Discharge Requirements, Order No. 99-08-DWQ, NPDES General Permit No. CAS000002 for the regulation of storm water discharges associated with construction activities. Order No. 99-08-DWQ, Special Provision No. C. 3, allows for the limited discharge of non-stormwater discharges where they do not cause or contribute to a violation of any water quality standard. Receiving Water Limitations in Order No. 99-08-DWQ require compliance with all applicable water quality standards including those contained in the Basin Plan. The Board finds that Order No. 99-08-DWQ provides adequate water quality protection and compliance monitoring. Non-stormwater discharges related to construction activities may continue to be regulated under Order No. 99-08-DWQ while construction activities continue.

14. The Board has adopted a Water Quality Control Plan, 4th Edition, for the Sacramento/San Joaquin River Basins (hereafter Basin Plan). The Board has also adopted a Water Quality Control Plan for the Tulare Lake Basin (5D). The Basin Plans designate beneficial uses, establishes water quality

NPDES WASTE DISCHARGE REQUIREMENTS GENERAL ORDER NO. 5-00-175
LOW THREAT AND DEWATERING WASTEWATER DISCHARGES
TO SURFACE WATERS

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objectives, and contains implementation programs and policies to achieve water quality objectives for all waters of the Basin. This Order implements the Plans.

15. EPA adopted the National Toxics Rule on 5 February 1993 and the California Toxics Rule (CTR) on 18 May 2000. The State Board has adopted an Implementation Plan for the CTR. The Rules contains water quality standards applicable to this discharge. Federal regulations also require effluent limitations for all pollutants that are or may be discharged at a level that will cause or have the reasonable potential to cause, or contribute to an in-stream excursion above a narrative or numerical water quality standard, including the Rule. The Board finds that the discharges prescribed by this Order do not have a reasonable potential to cause or contribute to an in-stream excursion above a water quality objective. If information becomes available that shows there is a reasonable potential for the discharge to exceed any water quality objective or standard the discharge shall be immediately terminated. The discharge may not be resumed until authorized by the Executive Officer, individual waste discharge requirements are issued or the discharge may be prohibited.
16. The designated beneficial uses of ground water within the Central Valley Region are municipal, industrial, and agricultural supply, except where lesser beneficial uses are designated in the Water Quality Control Plans.
17. The beneficial uses of surface waters, as identified in Table II-1 of the Basin Plan, are municipal and domestic supply, agricultural irrigation, agricultural stock watering, industrial process water supply, industrial service supply, hydro power generation, body contact water recreation, canoeing and rafting, other non-body contact water recreation, warm freshwater aquatic habitat, cold freshwater aquatic habitat, warm fish migration habitat, cold fish migration habitat, warm spawning habitat, cold spawning habitat, wildlife habitat, and navigation. The beneficial uses of water bodies identified in the Basin Plan downstream of the discharge, as identified in Table II-1, shall apply. If a water body into which wastewater is discharged is not specifically identified in the Basin Plan, the Plan states "The beneficial uses of any specifically identified water body generally apply to its tributary streams." The Board finds that, for purposes of this Order where specific water bodies are not identified, the beneficial uses identified in the Basin Plan for the downstream waters are applicable to water body into which discharge occurs.
18. The Water Quality Control Plans encourage the disposal of wastewater on land where practicable, and require applicants for discharge permits to evaluate land disposal as a first alternative. Where studies show that year-round land disposal is not practicable, the Discharger must evaluate, and utilize if feasible, dry season land disposal as an alternative.
19. The Board has considered antidegradation pursuant to 40 CFR 131.12 and State Water Resources Control Board Resolution 68-16 and finds that the subject discharges are consistent with those provisions. There will not be degradation if the requirements of the permit are met. Compliance with these requirements will result in the use of best practicable treatment or control of the discharge. The impact on existing water quality will be insignificant. This Order provides for an increase in the volume and mass of pollutants discharged. The increase will not cause a violation of water quality objectives. The increase in the discharge allows wastewater utility service necessary to accommodate

NPDES WASTE DISCHARGE REQUIREMENTS GENERAL ORDER NO. 5-00-175
LOW THREAT AND DEWATERING WASTEWATER DISCHARGES
TO SURFACE WATERS

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housing and economic expansion in the area, and is considered to be a benefit to the people of the State. Compliance with these requirements will result in the use of best practicable treatment or control of the discharge. If the discharge is not consistent with these policies it will not be covered under this Order.

0. Effluent limitations, and toxic and pretreatment effluent standards established pursuant to Sections 301, 302, 304, and 307 of the Clean Water Act (CWA) and amendments thereto are applicable to the Discharge.
11. These discharges are currently governed by Waste Discharge Requirements, Order No. 93-230, adopted by the Board on 3 December 1993.
22. The action to adopt an NPDES permit is exempt from the provisions of Chapter 3 of the California Environmental Quality Act (CEQA) (Public Resources Code Section 21100, et seq.), in accordance with Section 13389 of the California Water Code.
23. The Board has notified interested agencies and persons of its intent to prescribe waste discharge requirements in the General Order and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.
24. The Board, in a public meeting, heard and considered all comments pertaining to the discharge.
25. This Order shall serve as an NPDES permit pursuant to Section 402 of the Clean Water Act, and amendments thereto, and shall take effect upon the date of hearing, provided EPA has no objections.

IT IS HEREBY ORDERED that Order No. 93-230 is hereby rescinded and all Dischargers that file a NOI and appropriate filing fee indicating their intention to be regulated under provisions of this General Order, and all heirs, successors, or assigns, in order to meet the provisions contained in Division 7 of the California Water Code and Regulations adopted thereunder, and the provisions of the Clean Water Act and Regulations and Guidelines adopted thereunder, shall comply with the following:

A. Discharge Prohibitions:

1. Discharge of wastewater other than that described in the Findings is prohibited. The wastewater shall be free of all other pollutants. The wastewater shall not cause or threaten to cause pollution, contamination, or nuisance.
2. Discharge of contaminated ground water is prohibited.
3. The by-pass or overflow of wastes to surface waters is prohibited, except as allowed by the attached Standard Provisions and Reporting Requirements A. 13.

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NPDES WASTE DISCHARGE REQUIREMENTS GENERAL ORDER NO. 5-00-175
LOW THREAT AND DEWATERING WASTEWATER DISCHARGES
TO SURFACE WATERS

: 6 :

B. Effluent Limitations:

1. Effluent shall not exceed the following limits:

<u>Constituents</u>	<u>Units</u>	<u>Monthly Average</u>	<u>Weekly Average</u>	<u>Daily Maximum</u>
BOD'	mg/l	10	15	30
Total Suspended Solids	mg/l	10	15	30
Settleable Solids	ml/l			0.1

' 5-day, 20°C biochemical oxygen demand (BOD)

2. Effluent discharged into a surface water body shall not contain chlorine in excess of 0.02 mg/l (instantaneous maximum). If the wastewater contains chlorine in excess of 0.02 mg/l, the Discharger shall certify that chlorine will be reduced to a maximum of 0.02 mg/l before wastes enter surface water.
3. Effluent discharged into a surface water body shall not have a pH less than 6.5 nor greater than 8.5.
4. The average dry weather (May through October) discharge flow shall not exceed 0.25 MGD unless the discharge is four months or less in duration in which case there is no flow limit.

C. Solids Disposal:

1. Collected screenings and other solids removed from liquid wastes shall be disposed of in a manner that is consistent with Chapter 15, Division 3, Title 23, of the CCR and approved by the Executive Officer.
2. Any proposed change in solids use or disposal practice shall be reported to the Executive Officer and EPA Regional Administrator at least 90 days in advance of the change.

D. Receiving Water Limitations:

Receiving Water Limitations are based upon water quality objectives contained in the Basin Plan. As such, they are a required part of this permit. The discharge shall not cause the following in the receiving water:

1. Concentrations of dissolved oxygen to fall below 7.0 mg/l.
2. Oils, greases, waxes, or other materials to form a visible film or coating on the water surface or on the stream bottom.

NPDES WASTE DISCHARGE REQUIREMENTS GENERAL ORDER NO. 5-00-175
LOW THREAT AND DEWATERING WASTEWATER DISCHARGES
TO SURFACE WATERS

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3. Oils, greases, waxes, floating material (liquids, solids, foams, and scums) or suspended material to create a nuisance or adversely affect beneficial uses.
4. Aesthetically undesirable discoloration.
5. Fungi, slimes, or other objectionable growths.
6. The turbidity to increase as follows:
 - a. More than 1 Nephelometric Turbidity Units (NTUs) where natural turbidity is between 0 and 5 NTUs.
 - b. More than 20 percent where natural turbidity is between 5 and 50 NTUs.
 - c. More than 10 NTUs where natural turbidity is between 50 and 100 NTUs.
 - d. More than 10 percent where natural turbidity is greater than 100 NTUs.
7. The normal ambient pH to fall below 6.5, exceed 8.5, or change by more than 0.5 units.
8. Deposition of material that causes nuisance or adversely affects beneficial uses.
9. The normal ambient temperature to be altered more than 5°F.
10. Taste or odor-producing substances to impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin or to cause nuisance or adversely affect beneficial uses.
11. Radionuclides to be present in concentrations that exceed maximum contaminant levels specified in the California Code of Regulations, Title 22; that harm human, plant, animal or aquatic life; or that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal, or aquatic life.
12. Aquatic communities and populations, including vertebrate, invertebrate, and plant species, to be degraded.
13. Toxic pollutants to be present in the water column, sediments, or biota in concentrations that adversely affect beneficial uses; that produce detrimental response in human, plant, animal, or aquatic life; or that bioaccumulate in aquatic resources at levels which are harmful to human health.
14. Violation of any applicable water quality standard for receiving waters adopted by the Board or the State Water Resources Control Board pursuant to the CWA and regulations adopted thereunder.

**NPDES WASTE DISCHARGE REQUIREMENTS GENERAL ORDER NO. 5-00-175
LOW THREAT AND DEWATERING WASTEWATER DISCHARGES
TO SURFACE WATERS**

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E. Provisions:

1. Dischargers currently covered by Order No. 93-230 are automatically granted coverage under this Order for a period of 90-days following adoption, during which time the Discharger may file a Notice of Intent (NOI) for coverage under this Order. Coverage under this Order is terminated after the 90-day period unless a new NOI has been submitted. The Discharger must comply with all conditions of this Order, including timely submittal of technical and monitoring reports as directed by the Executive Officer. Violations may result in enforcement action, including Regional Board or court orders requiring corrective action or imposing civil monetary liability, or in revocation of authorization to discharge under this Order.
2. Individual owners of the real property at which the discharge will occur are ultimately responsible for ensuring compliance with these requirements. Individuals and companies responsible for site operations retain primary responsibility for compliance with these requirements, including day-to-day operations and monitoring. Enforcement actions will be taken against landowners in the event that enforcement actions against site operators are ineffective or would be futile, or that enforcement is necessary to protect public health or the environment.
3. A copy of this Order shall be kept at the discharge facility for reference by operating personnel. Key operating and site management personnel shall be familiar with its contents.
4. Water suppliers with numerous discharge points may elect to prepare and implement a Pollution Prevention and Monitoring and Reporting Plan (PPMRP) rather than identify and monitor each discharge as required in the NOI (Attachment A) and Monitoring and Reporting Program (Attachment C). The PPMRP must be submitted with the NOI prior to discharge and is subject to approval by the Regional Board Executive Officer. The PPMRP shall include as a minimum the elements identified in Attachment B.
5. The Discharger shall use the best practicable cost-effective control technique currently available to limit mineralization to no more than a reasonable increment.
6. The Discharger shall comply with all the applicable items of the "Standard Provisions and Reporting Requirements for Waste Discharge Requirements (NPDES)", dated 1 March 1991, which are part of this Order. This attachment and its individual paragraphs are referred to as "Standard Provision(s)."
7. The Discharger shall comply with the attached Monitoring and Reporting Program contained in Attachment C of this Order, and any revisions thereto, as ordered by the Executive Officer.

When requested by EPA, the Discharger shall complete and submit Discharge Monitoring Reports. The submittal date shall be no later than the submittal date specified in the Monitoring and Reporting Program for Discharger Self Monitoring Reports.

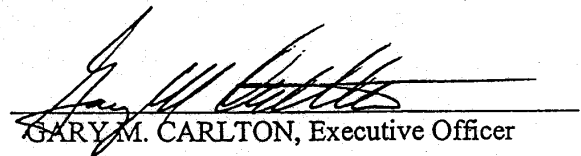
NPDES WASTE DISCHARGE REQUIREMENTS GENERAL ORDER NO. 5-00-175
LOW THREAT AND DEWATERING WASTEWATER DISCHARGES
TO SURFACE WATERS

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8. This Order expires on 1 June 2005.
9. In the event of any change in control or ownership of land or waste discharge facilities presently owned or controlled by the Discharger, the Discharger shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to this office.

To assume operation under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order. The request must contain the requesting entity's full legal name, the State of incorporation if a corporation, the name, address, and telephone number of the persons responsible for contact with the Board, and a statement. The statement shall comply with the signatory paragraph of Standard Provision D.6 and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered discharge without requirements, a violation of the California Water Code. Transfer shall be approved or disapproved in writing by the Executive Officer.

I, GARY M. CARLTON, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 16 June 2000.



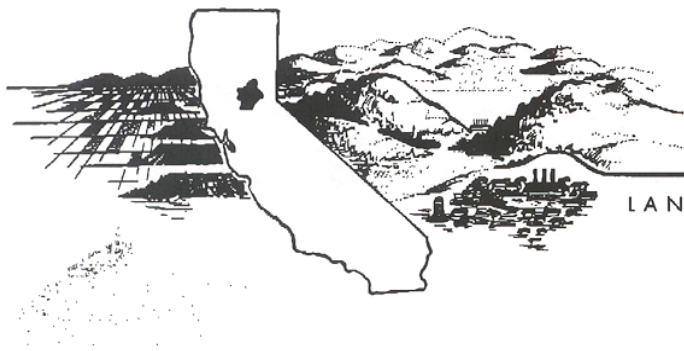
GARY M. CARLTON, Executive Officer

Attachments

RPM:lm

APPENDIX G

LETTERS OF SUPPORT



Butte County

LAND OF NATURAL WEALTH AND BEAUTY

WATER AND RESOURCE CONSERVATION

1 COUNTY CENTER DRIVE • OROVILLE, CALIFORNIA 95965-3398
(530) 538-4343 • FAX: (530) 538-3807 • bcwater@buttecounty.net

ED CRADDOCK
Director

November 26, 2002

Ray Auerbach
Manager
Paradise Irrigation District
PO Box 2409
Paradise, Ca 95967

Dear Mr. Auerbach:

I'm writing to support the application for a Proposition 13 Urban Water Conservation Capital Outlay Grant for Paradise Irrigation District (PID). Butte County's Water Inventory and Analysis, funded under Proposition 204, has shown that the Paradise Ridge can face water supply shortages during one severe drought year similar to 1977. The need for additional water supplies on the Paradise Ridge led to the execution of a Memorandum of Understanding (MOU) between the County, Del Oro Water Company and PID in January 2001. The MOU helps ensure collaborative efforts in creating water supplies through efficient water management.

In my many years with the Department of Water Resources, it became apparent that leak detection, repair and main replacement were the most cost-effective urban water management practices. PID's efforts toward reducing losses in their system have been successful over the past two decades, and upgrading their program is important to reduce their "unaccounted for water" further. By improving their program, PID should be able to reduce their current system losses of 17% during this decade nearer to the statewide average of 10%.

It is critically important that citizens in area of origin counties are protected from water shortages, while millions of acre-feet are being stored for use elsewhere in California.

Sincerely,

Ed Craddock



TOWN OF PARADISE

5555 SKYWAY • PARADISE, CALIFORNIA 95969-4931

November 25, 2002

California Department of Water Resources
Office of Water Use Efficiency
P.O. Box 942836
Sacramento, Ca 94236-0001
Attention: Marsha Prillwitz

Subject: Support for Paradise Irrigation District's Proposition 13 Grant Applications

The Town of Paradise is impacted in many ways by the Paradise Irrigation District's older leaking water mains. The projects proposed in the current grant applications will provide enhanced fire protection, help assure an adequate water supply for existing and future residents of the Town, and eliminate traffic hazards and inconvenience due to a large number of emergency repairs to water mains.

The District's main replacements are generally of a larger size than the existing mains to provide adequate fire flows to the area served by the new mains. This is extremely important in our foothill town that can be subject to devastating wildland fires.

The reduction in water losses due to leakage from older steel mains will help to assure an adequate water supply for our current residents, and improve the District's ability to supply water to new developments in accordance with the Town's General Plan.

Although the District has made major strides in replacing older mains and reducing leaks, it is apparent that additional funding is needed to accelerate their programs.

If you have any questions feel free to call me at (530) 872-6291.

Sincerely,

Charles L. Rough Jr.
Town Manager



Kim K. Yamaguchi

Supervisor, Fifth District

**747 Elliott Road
Paradise, Ca 95969**

**Phone: (530) 872-6304 Fax: (530) 872-6339
E-Mail: KYamaguchi@ButteCounty.net**

December 2, 2002

California Department of Water Resources
Office of Water Use Efficiency
P.O. Box 942836
Sacramento, CA. 94236-0001
Attention: Marsha Prillwitz

Subject: Support for Paradise Irrigation District Grant Application

Dear Members,

I would like to support the Paradise Irrigation District's grant application under Proposition 13 Urban Water Conservation Grant Program. The District has been working hard to replace and repair the existing water delivery system and has made strident gains to date. The old antiquated system had numerous leaks and weak points that had long been neglected. The P.I.D. implemented an ambitious repair and replace plan that has shown much success. However, the District still needs an aggressive replacement program to continue the success, and is in much need of additional funds to keep the beneficial progress continuing in our community.

I, along with the Butte County Water and Resource Department, and P.I.D. have been working together to find additional sources of water, and programs of water conservation to benefit the 5th District. Although some of the solutions to our water shortage are possible to implement, they are costly and years away from implementation. The main replacement program has had a major impact in curing the water loss through leaks. We, the community of 27,000 citizens, have only 12,500 acre feet of water storage capacity, and any loss of water represents a significant impact.

Please help our community and its citizens by granting us the ability to help ourselves better manage the precious natural resource of water. Thank you and God Bless America.

Sincerely,

A handwritten signature in black ink, appearing to read "K K Y", with a stylized flourish at the end.

Kim K. Yamaguchi,
Butte County Supervisor
District 5

APPENDIX H

BENEFIT / COST ANALYSIS:

RATIONALE AND SUPPORTING CALCULATIONS

REGULAR MEETING
BOARD OF DIRECTORS
PARADISE IRRIGATION DISTRICT

January 9, 2002

The regular meeting of the Board of Directors of the Paradise Irrigation District was called to order at 7:00 p.m. by President Frank Caunt.

ROLL CALL

PRESENT: Directors Claude Powers, Stan Zemansky, John Heinke, Rick Hall, and President Frank Caunt.

ABSENT: None.

ALSO PRESENT: Manager Ray Auerbach, Treasurer Ron Kresnicka, Water Treatment Plant Superintendent Rick Terrano, Field Superintendent John Price, Assistant Engineer Neil Essila, URS representatives Noel Wong and Gil Lawton, a few visitors, and a member of the press.

CONSENT AGENDA
APPROVED

It was MOVED by Director Powers, Seconded by Director Zemansky, that the Consent Agenda be approved. (Copy attached hereto and made a part of these Minutes.)

AYES: Directors Powers, Zemansky, Caunt, Heinke, and Hall.

NOES: None.

ABSENT: None.

PRESENTATION BY
URS - 204 FEASIBILITY GRANT
STUDY

Manager Auerbach stated that one and one-half years ago the District received a 204 Grant under the California Safe, Clean, Reliable Water Supply Act from the Department of Resources to obtain a local projects feasibility study grant and introduced Noel Wong and Gil Lawton, URS Consultants, to give a presentation on the final reports on Geotechnical Services for Feasibility Studies for Raising Paradise Dam and for Modifying Restricted Reservoir Level of Magalia Dam. Mr. Wong noted that Gilles Bureau was the leader of the Magalia portion of the project. Mr. Lawton reviewed the history of the construction of Paradise Dam and reviewed, illustrated by overhead projection, and discussed with the Board, two potential methods of raising the dam, three alternative levels of raise of the dam, spillway alternatives, conceptual level estimated construction costs and cost comparison, and other considerations regarding facilities and reservoir operation during construction. He noted that preliminary environmental review did not identify any major "Fatal Flaw", and recommended potential issues to be addressed in the full environmental review of the project. He further provided a history of construction of Magalia Dam, and reviewed and discussed with the Board an updated stability analyses concluding that the dam could safely be raised ten feet in elevation, which would require presentation to the Division of Safety of Dams for review and approval. The Manager and Board members discussed benefits of raising Magalia Dam including: additional storage, reduced pumping costs, and aesthetic value. Manager Auerbach expressed the District's appreciation for the valuable information provided by the study.

ENGINEERING
SOFTWARE
PURCHASE
APPROVED

Assistant Engineer Essila reviewed a memorandum with the Board regarding purchase of software for the Engineering Office, and Manager Auerbach added that it is important to keep the mapping program going to keep updated information available for Field personnel use, adding that a presentation would be provided for the Board in the near future.

It was MOVED by Director Hall, Seconded by Director Caunt, to authorize purchase of one new site license for Auto CAD Map 5, upgrade the existing site license from AutoCAD May 5, and purchase AutoCAD Subscription Program for each site license for one year, \$5,071.65.

AYES: Directors Powers, Zemansky, Caunt, Heinke, and Hall.

NOES: None.

ABSENT: None.

Manager Auerbach reviewed the Manager's Report with the Board, and discussed snow and rain runoff in the watershed with visitor Joe Frank and Director Caunt.

MANAGER'S
REPORT

Treasurer Kresnicka reviewed the Treasurer's Report with the Board, reviewing the cash position, consumption, energy costs, 204 Grant reimbursement, and the auditor's progress on recalculating the bond refunding issue, and it was

TREASURER'S
REPORT
ACCEPTED

MOVED by Director Hall, Seconded by Director Powers, to accept the Treasurer's Report for the period ending November 30, 2001.

YES: Directors Powers, Zemansky, Caunt, Heinke, and Hall.

NOES: None.

ABSENT: None.

Manager Auerbach noted that Del Oro Water Company's (DOWC) small amount of stored water will soon spill. He noted that DOWC is going ahead with design of the two-mile pipeline in the Lime Saddle area, and will be looking for funding for the project.

DOWC WATER
SUPPLY ISSUES

Manager Auerbach noted that the Board has received the two annual Surplus Water Users Agreements for review, and it was

SURPLUS
WATER USERS
AGREEMENTS
APPROVED

MOVED by Director Powers, Seconded by Director Hall to approve two Annual Surplus Water Users Agreements for the calendar year 2002.

YES: Directors Powers, Zemansky, Caunt, Heinke, and Hall.

NOES: None.

ABSENT: None.

It was MOVED by Director Zemansky, Seconded by Director Caunt to adopt Resolution 2002-01 authorizing of officials for financial transactions for District accounts with Butte Community Bank.

RESO. 2002-01
BCB FINANCIAL
AUTHORIZA-
TION

YES: Directors Powers, Zemansky, Caunt, Heinke, and Hall.

NOES: None.

ABSENT: None.

It was MOVED by Director Zemansky, Seconded by Director Caunt, that General Fund warrants number 27496 through 27562 totaling \$147, 526.92 be approved.

WARRANTS
APPROVED


AYES: Directors Powers, Zemansky, Caunt, Heinke, and Hall.

NOES: None.

ABSENT: None.

It was MOVED by Director Powers, Seconded by Director Zemansky, that the meeting be adjourned. The meeting was adjourned at 9:24 p.m.

ADJOURNMENT



Frank G. Caunt, President



Katherine M. Welborn, Secretary

REGULAR MEETING
BOARD OF DIRECTORS
PARADISE IRRIGATION DISTRICT
AUGUST 21, 2002

The regular meeting of the Board of Directors of the Paradise Irrigation District was called to order at 1:30 p.m. by President Frank Caunt.

PRESENT: Directors Claude Powers, Stan Zemansky, John Heinke, Rick Hall, and President Frank Caunt.

ROLL CALL

ABSENT: None.

ALSO PRESENT: Manager Ray Auerbach, Field Superintendent John Price, Office Manager Wendy Rickards, Assistant Engineer Essilla a few visitors, and members of the Press.

Director Hall stated that the votes on Closed Session issues were reported at the May 1, 2002 meeting and should be part of the minutes.

Director Zemansky stated that at the August 21, 2002 meeting he had stated, regarding the RDA, that: the original area was "120 acres and has expanded to 615 acres south to Neal Road, north to Town Limits, over to Clark Road, and west to include Black Olive and PID headquarters", and requested that this statement be included in the minutes.

It was **MOVED** by Director Zemansky, Seconded by Director Powers to approve the Consent Agenda with the exception of the May 1, and May 15, 2002 minutes.

AYES: Directors Powers, Zemansky, Caunt, Heinke, and Hall.

NOES: None.

ABSENT: None.

**CONSENT
AGENDA
APPROVED
EXCEPTING
MAY 1, AND 15,
2002 MINUTES**

Visitor Liz Kassa stated that Director Zemansky has mentioned water problems, and requested what the water problems are. Director Zemansky responded that the District is limited to a firm yield of 7300 acre feet of water, and water usage is in excess of 7700 acre feet which is beyond the firm yield, adding that in case of drought there is possibly 12,000 acre feet of water in storage, adding that more water is needed if the PID boundaries are increased, and referenced information from the Urban Water Management Plan. Director Caunt referenced other data. Ms. Kassa questioned why the refusal of FHK request for water for fire protection only. Director Caunt responded that drought situations need to be considered and Legal Counsel was contacted.

Ms. Kassa questioned when Town Manager Rough would address the Board regarding the RDA, and Manager Auerbach responded that scheduling problems precluded Mr. Rough's attending an August meeting and scheduling is still being worked on.

**VISITOR'S
COMMENTS**

Manager Auerbach stated that the LAFCo billing is in the Butte County Auditor's office, and has not been received by the District as yet. Director Caunt stated that the Finance Committee meeting was cancelled as it was not expected to be a public meeting and the Agenda could not be amended. Manager Auerbach stated that the Butte County/PID/DOWC MOU discussed the PID grant study, Del Oro Water Company (DOWC) environmental work on the Lime Saddle pipeline, which needs approval from the PUC to fund the CEQA work, and the Butte County project study of the Miocene Canal as a water source, and the District provided a brief review of the URS Grant study report.

**COMMITTEE
REPORTS**

**WOODGLEN/
KIBLER WATER
SERVICE
APPROVED**

Manager Auerbach reviewed a request for water service from a District Main not contiguous to property located between Woodglen Drive and Kibler Road, listing conditions, and noting that approval would expire within one year. Directors discussed the pipeline configuration in the area and conditions of approval, and it was MOVED by Director Hall, Seconded by Director Powers to provide water service to the property identified as APN 054-132-049 subject to five recommended conditions.

AYES: Directors Powers, Zemansky, Caunt, Heinke, and Hall.

NOES: None.

ABSENT: None.

**WATER SERVICE
REQUEST
CONTINUED**

Manager Auerbach stated that the applicant has requested that consideration of request for non contiguous water service for property located on Lassen Road off Sutter Road (APN 054-220-003) be continued to a future meeting.

**CHANEY LANE
EASEMENT
APPROVED**

Manager Auerbach reviewed a request for an easement on District-owned Chaney Lane, noting that an easement was granted to various land owners in 1963, but the Pelants were not named as beneficiaries in that document. He added that the property fronts on Pearson Road but the best access is from Chaney Lane. Assistant Engineer Essilla noted that language has been added to the document to prevent interference with PID facilities in case of future repairs. Directors discussed the access, public utility easements, and the age and type of pipeline material, and it was

MOVED by Director Powers, Seconded by Director Heinke to approve the request for grant of easement as reviewed by the Manager.

AYES: Directors Powers, Zemansky, Caunt, Heinke, and Hall.

NOES: None.

ABSENT: None.

**MANAGER'S
REPORT**

Manager Auerbach reviewed the Manager's Report with the Board noting meeting with the Division of Safety of Dams regarding raising the water level of Magalia Reservoir ten feet and maintaining the elevation during storms, noting that the report from their geotechnical staff will be transmitted to Genterra regarding the Skyway widening project. Directors discussed storm condition controls of the reservoir levels.

Manager Auerbach stated that: the LAFCo legislation, SB 1586 is being considered by the full Assembly; the Finance Committee should have another meeting regarding the Budget before the September 4 Board Meeting; and Butte County officials are working on resolution of the encroachment onto the 42-inch pipeline.

**2002 ASPHALT
PATCHING
PROJECT BID
ACCEPTED**

Manager Auerbach reviewed the bids for the 2002 Asphalt Patching Project noting a few irregularities in the bid responses which have been resolved, with the low bidder being Dee Fairbanks Enterprises. Director Caunt asked Director Heinke to make a motion, and it was

MOVED by Director Heinke, Seconded by Director Zemansky, to award the 2002 Asphalt Patching Project to Dee Fairbanks Enterprises for the amount of \$58,319.94.

AYES: Directors Powers, Zemansky, Caunt, Heinke, and Hall.

NOES: None.

ABSENT: None.

Manager Auerbach and Office Manager Wendy Rickards reviewed a memorandum regarding request for Printer and Software Purchase to provide a color network laser printer to handle larger sizes of print jobs, and provided results of research of available equipment, and it was

PRINTER/SOFT
WARE
PURCHASE
APPROVED

MOVED by Director Zemansky, Seconded by Director Caunt to authorize the purchase of a color laser printer, HP8550dn, and Adobe Photoshop 7.0 from the most reasonable total price vendor with the most acceptable delivery option, with funding proposed in the 2002-03 FY Budget.

AYES: Directors Powers, Zemansky, Caunt, Heinke, and Hall.
NOES: None.
ABSENT: None.

Manager Auerbach reviewed a memorandum regarding staff request for onsite Springbrook training to upgrade to the newest version of financial programs. Office Manager Rickards stated that the upgrade will expand capabilities of the system and is necessary to provide for further enhancements, and reviewed the costs involved. Director Caunt noted that the District was a BETA site for the Springbrook system.

ONSITE
SPRINGBROOK
TRAINING
APPROVED

It was MOVED by Director Caunt, Seconded by Director Powers to approve on-site training with Roberta Heinz from Springbrook for Finance and online training for Utility Billing, with the total cost not to exceed \$5,000.

AYES: Directors Powers, Zemansky, Caunt, Heinke, and Hall.
NOES: None.
ABSENT: None.

Director Caunt stated he would have to leave the meeting early, and moved on to discussion of the "Preliminary Engineering Feasibility Report for Butte County, Study of Miocene and Hendricks Canals as Potential Sources of Water for the Paradise Ridge". He stated that the study was funded by Butte County from the Lime Saddle monies. He stated that this report was couched to be in terms of DOWC but it PID is very much considered as a user of this proposal. He reviewed the considerations of uses of these canals in conjunction with the Butte County water entitlement, costs, and noting reliance on PG&E, the owners of the canals, and alluding to their adversarial relationship with Butte County. Directors discussed the "outrageous" costs entailed for a limited amount of water and agreed that this should be put on the "back burner" as far as a source of water. Manager Auerbach reviewed the mechanics of the proposal using Magalia Reservoir and Kunkle Reservoir, and suggested noting receipt of and filing the document, which can be reviewed by consultants.

It was MOVED by Director Caunt, Seconded by Director Heinke, that with consideration to the Preliminary Engineering Feasibility Report for the Miocene and Hendricks Canals as a source of water, the PID on this date does not deem the Miocene Canal and the Hendricks Canal to be of use by PID.

Director Hall commented that the Board was pretty much in consensus regarding the report, but considered that this is rather drastic action when the Board has already discussed accepting the report and putting it on the back burner for some type of investigation in the future, asking Director Caunt if he is just trying to kill the project or what. Director Caunt stated that it started out that this was a report for DOWC, and now we find it has included PID, and the PID Board did not know about this element, so this motion is to settle the record, and if future pieces of information come up the Board can reverse itself. Director Hall stated that this information has just been received and only

Director Caunt has attended meetings, whereas the rest of the Board has not had an opportunity to review the information. Director Powers stated that the District should not close the door. Following further discussion,

Director's votes were polled as follows:

AYES: Directors Caunt and Heinke.

NOES: Directors Powers, Zemansky, and Hall.

ABSENT: None.

WATER SUPPLY ALTERNATIVES DISCUSSED

Director Heinke stated that over the past years a lot of studies have been done and the Board has gone on record as giving staff direction as to where we want to go. He further stated that he considers the best supply for the District's water would be by raising Paradise Dam and working with Butte County and the State on stabilizing Magalia Dam and possibly raising this dam. He added that the District should have a direction it is going and have staff working on surveys to get that done. He noted that the Miocene Canal study shows how expensive other water can be. Director Powers stated that the current work to raise the level of Magalia reservoir is important.

Manager Auerbach agreed that this is basically where the direction is, adding that the District has a grant to look at water supply feasibility, and used overhead projection to review the grant study work plan. He stated that the study includes evaluation of water supply alternatives and determine the preferred alternative, and described the various elements of this evaluation including sharing data with Butte County and using the Department of Water Resources model. He added that the work to determine the preferred alternative must be completed before environmental review can proceed and before eminent domain procedures can be instituted. He stated that Requests for Qualifications have been sent to engineering firms, and Request for Proposals will follow, to complete the grant study. He noted that consideration of the amount of height to raise the dam includes the amount of land that will be inundated and the impact on trees and vegetation.

Discussion included consideration of obligations to Lime Saddle and if the need for water storage would be eliminated by the proposed DOWC pipeline. Manager Auerbach suggested other concerns to consider such as the 42-inch pipeline being out of service and repair of No. 1 pump station. Director Powers added that the District would not want its water rights to be jeopardized.

In response to questions from candidate Larry Duncan, Manager Auerbach reviewed the remaining funds and work to be completed for the 204 Feasibility Grant Study such as looking at the Skyway Widening project with Butte County. Director Powers noted that the District is working with the County regarding a major fix for Magalia Dam, which would also determine if and how high the dam could be raised.

AGREEMENT WITH BUTTE COUNTY FOR REIMBURSE- MENT OF URS REVIEW FOR SKYWAY PROJ.

Manager Auerbach reviewed a proposed letter agreement in which Butte County will reimburse PID for URS Corporation to review and interact with the County and Genterra Consultants, Inc. for the County's proposed project to widen the Skyway roadway across the Magalia Reservoir. Director Caunt expressed confusion regarding why Genterra pulled back their report, noting that Don Babbit is with Genterra and was Chief Engineer with the State Division of Safety of Dams (DSOD), and they would have looked at all of the data. Paul Lundbom stated that URS work is more conservative, and it is considered that a combined work effort will provide a greater united front to

DSOD. Manager Auerbach noted the request for raising the water level of Magalia Reservoir by ten feet which would result in looking at it at a different elevation, noting that URS will not have that much to review.

It was MOVED by Director Hall, Seconded by Director Powers, to accept the proposal from URS Corporation dated August 16, 2002 for Review/Interaction with County and Genterra Consultants, and authorize the Manager to execute an agreement for this work, and also approve Letter Agreement with the County of Butte, , and authorize the Manager to execute the agreement on behalf of the District.

AYES: Directors Powers, Zemansky, Caunt, Heinke, and Hall.
NOES: None.
ABSENT: None.

Director Hall stated that at the last meeting Director Zemansky presented a Code of Ethics for the Board and expressed concern that there was not some type of penalty for someone who would break this Code of Ethics, otherwise what is the use of having this sort of Code. He suggested that anyone who is in violation of the Code of Ethics be subject to a reprimand, and it was

MOVED by Director Hall, Seconded by Director Powers, that anyone who is in violation of the Code of Ethics be subject to a reprimand.

Director's votes were polled as follows:

AYES: Directors Powers and Hall.
NOES: Directors Zemansky, Heinke, and Caunt.
ABSENT: None.


Director Heinke requested that Agenda Item 7.b. "Annexation Committee Reports" be postponed as material was not received until Tuesday afternoon for review. Chairperson Caunt agreed and continued on to Item 7.c.


Manager Auerbach reported that Del Oro Water Company is continuing to use some water, noting it is just over half of last years use at this time.

It was MOVED by Director Powers, Seconded by Director Caunt, that General Fund warrants number 28438 through 28490 totaling \$179,654.15 be approved.

AYES: Directors Powers, Zemansky, Caunt, Heinke, and Hall.
NOES: None.
ABSENT: None.

It was MOVED by Director Hall, Seconded by Director Caunt, that the meeting be adjourned. The meeting was adjourned at 3:30 p.m


Frank Caunt, President


Katherine M. Welborn, Secretary

PENALTY FOR
VIOLATION OF
CODE OF
ETHICS
DECLINED

ANNEXATION
COMMITTEE
RPTS.
CONTINUED

DOWC WATER
SUPPLY ISSUES

WARRANTS
APPROVED

ADJOURNMENT

Appendix H. Table 1. Economic Analysis Background Data

Additional Reservoir Capacity	5,000acre-feet	URS P-II RE Wall
Firm Yield Factor	0.5(1/year)	Factor @ current storage
Additional Reservoir Firm Yield	2,500acre-feet/yr	
Estimated Construction Costs	5,835,000dollars	URS P-II RE Wall
Estimated Engineering Costs	875,250dollars	15%
Estimated Land Acquisition Cost	1,200,000dollars	120 acres @ \$10,000/acre
Total Cost for Reservoir Expansion	7,910,250dollars	
Unit Cost of Additional Storage Capacity	3,164\$/acre-ft/yr	
Treatment Plant Capacity (mgd)	19.04mgd	From submission to DOHS
Treatment Plant Capacity (acre-ft/year)	21,327acre-ft/yr	
Capital Cost of Treatment Plant	12,880,355dollars	per WR
Unit Cost of Treatment Capacity	603.93\$/acre-ft/yr	
Pumping Plant Capacity (mgd)	25mgd	Raw Water Pumping Station Predesign Report
Pumping Plant Capacity (acre-ft/year)	28,003acre-ft/yr	
Capital Cost of Pumping Plant	2,395,000dollars	per WR
Unit Cost of Raw Water Pumping Capacity	85.53\$/acre-ft/yr	
Total Unit Capital Cost of Capacity	3,853.56\$/acre-ft/yr	
Incremental Cost of Treatment (energy & chemicals)	33.39\$/acre-ft	per RT 11/20/02
Average Cost Per Leak Repair	522\$/leak	per JP 11/20/02

Appendix H. Table 2. Phase 1 - Detailed Benefit / Cost Ratio Analysis

Projects: Butte View Terrace, Edgewood Lane, Friendly Way, Pearson Road, & Stark Lane													
A	Discount Rate	G	Total Leaks (14 years, 1989 - 2002)	137									
B	Escalation Rate	H	Percent of System Wide Total Leaks	5.82% = G / 2352									
C	Annual Rate of increase in number of pipeline leaks	I	Pipeline Footage	6,325									
D	Average cost to repair one leak	J	Project cost	\$462,280.72									
E	Incremental cost of water treatment	K	Total Project Benefits (Operating and Capital Costs)	\$799,604.65 = X + Y									
F	Total Unit Capital Cost of Capacity	L	B/C Ratio	1.730 = K / J									
Year	Leak avoided per year	Cost of Leak Repair Avoided	Water Saved per Year (acre-feet)	Cost of Water Saved	Total Operating Cost Savings	Incremental Water Savings, (acre-feet)	Current Value of Operating Cost Savings	Capital Cost Savings	Current Value of Capital Savings				
M	$=G/14 \times (1+C)^M$	$=D \times N$	$= 1000 \times H \times (1+C)^M$	$= P \times E$	$= O + Q$	$= P_M - P_{M-1}$	$= R / ((1+A)^M)$	$= T \times F$	$= U / ((1+A)^M)$				
0	0.00	\$0.00	0.00	\$0.00	\$0.00	0.00	\$0.00	\$0.00	\$0.00				
1	10.28	\$5,363.55	61.16	\$2,042.16	\$7,405.71	61.16	\$6,986.52	\$235,686.44	\$222,345.70				
2	10.79	\$5,631.73	64.22	\$2,144.26	\$7,775.99	3.06	\$6,920.60	\$11,784.32	\$10,488.00				
3	11.33	\$5,913.31	67.43	\$2,251.48	\$8,164.79	3.21	\$6,855.32	\$12,373.54	\$10,389.06				
4	11.89	\$6,208.98	70.80	\$2,364.05	\$8,573.03	3.37	\$6,790.64	\$12,992.21	\$10,291.05				
5	12.49	\$6,519.43	74.34	\$2,482.25	\$9,001.68	3.54	\$6,726.58	\$13,641.83	\$10,193.97				
6	13.11	\$6,845.40	78.06	\$2,606.37	\$9,451.77	3.72	\$6,663.12	\$14,323.92	\$10,097.80				
7	13.77	\$7,187.67	81.96	\$2,736.68	\$9,924.35	3.90	\$6,600.26	\$15,040.11	\$10,002.53				
8	14.46	\$7,547.05	86.06	\$2,873.52	\$10,420.57	4.10	\$6,538.00	\$15,792.12	\$9,908.17				
9	15.18	\$7,924.41	90.36	\$3,017.19	\$10,941.60	4.30	\$6,476.32	\$16,581.72	\$9,814.70				
10	15.94	\$8,320.63	94.88	\$3,168.05	\$11,488.68	4.52	\$6,415.22	\$17,410.81	\$9,722.11				
11	16.74	\$8,736.66	99.62	\$3,326.46	\$12,063.12	4.74	\$6,354.70	\$18,281.35	\$9,630.39				
12	17.57	\$9,173.49	104.61	\$3,492.78	\$12,666.27	4.98	\$6,294.75	\$19,195.42	\$9,539.54				
13	18.45	\$9,632.17	109.84	\$3,667.42	\$13,299.58	5.23	\$6,235.36	\$20,155.19	\$9,449.54				
14	19.38	\$10,113.77	115.33	\$3,850.79	\$13,964.56	5.49	\$6,176.54	\$21,162.95	\$9,360.39				
15	20.34	\$10,619.46	121.09	\$4,043.33	\$14,662.79	5.77	\$6,118.27	\$22,221.10	\$9,272.09				
16	21.36	\$11,150.44	127.15	\$4,245.50	\$15,395.93	6.05	\$6,060.55	\$23,332.15	\$9,184.61				
17	22.43	\$11,707.96	133.51	\$4,457.77	\$16,165.73	6.36	\$6,003.38	\$24,498.76	\$9,097.97				
18	23.55	\$12,293.35	140.18	\$4,680.66	\$16,974.01	6.68	\$5,946.74	\$25,723.70	\$9,012.14				
19	24.73	\$12,908.02	147.19	\$4,914.69	\$17,822.72	7.01	\$5,890.64	\$27,009.88	\$8,927.12				
20	25.96	\$13,553.42	154.55	\$5,160.43	\$18,713.85	7.36	\$5,835.07	\$28,360.38	\$8,842.90				
21	27.26	\$14,231.09	162.28	\$5,418.45	\$19,649.54	7.73	\$5,780.02	\$29,778.39	\$8,759.48				
22	28.63	\$14,942.65	170.39	\$5,689.37	\$20,632.02	8.11	\$5,725.49	\$31,267.31	\$8,676.84				
23	30.06	\$15,689.78	178.91	\$5,973.84	\$21,663.62	8.52	\$5,671.48	\$32,830.68	\$8,594.98				
24	31.56	\$16,474.27	187.86	\$6,272.53	\$22,746.80	8.95	\$5,617.97	\$34,472.21	\$8,513.90				
25	33.14	\$17,297.98	197.25	\$6,586.16	\$23,894.14	9.39	\$5,564.97	\$36,195.82	\$8,433.58				
26	34.79	\$18,162.88	207.11	\$6,915.47	\$25,078.35	9.86	\$5,512.47	\$38,005.62	\$8,354.02				
27	36.53	\$19,071.03	217.47	\$7,261.24	\$26,332.27	10.36	\$5,460.47	\$39,905.90	\$8,275.20				
28	38.36	\$20,024.58	228.34	\$7,624.30	\$27,648.88	10.87	\$5,408.95	\$41,901.19	\$8,197.14				
29	40.28	\$21,025.81	239.76	\$8,005.52	\$29,031.32	11.42	\$5,357.93	\$43,996.25	\$8,119.80				
30	42.29	\$22,077.10	251.75	\$8,405.79	\$30,482.89	11.99	\$5,307.38	\$46,196.06	\$8,043.20				
31	44.41	\$23,180.95	264.33	\$8,826.08	\$32,007.04	12.59	\$5,257.31	\$48,505.87	\$7,967.32				
32	46.63	\$24,340.00	277.55	\$9,267.39	\$33,607.39	13.22	\$5,207.71	\$50,931.16	\$7,892.16				
33	48.96	\$25,557.00	291.43	\$9,730.76	\$35,287.76	13.88	\$5,158.58	\$53,477.72	\$7,817.71				
34	51.41	\$26,834.85	306.00	\$10,217.29	\$37,052.14	14.57	\$5,109.92	\$56,151.60	\$7,743.95				
35	53.98	\$28,176.59	321.30	\$10,728.16	\$38,904.75	15.30	\$5,061.71	\$58,959.18	\$7,670.90				
36	56.68	\$29,585.42	337.36	\$11,264.57	\$40,849.99	16.06	\$5,013.96	\$61,907.14	\$7,598.53				
37	59.51	\$31,064.70	354.23	\$11,827.79	\$42,892.49	16.87	\$4,966.66	\$65,002.50	\$7,526.85				
38	62.49	\$32,617.93	371.94	\$12,419.18	\$45,037.11	17.71	\$4,919.80	\$68,252.63	\$7,455.84				
39	65.61	\$34,248.83	390.54	\$13,040.14	\$47,288.97	18.60	\$4,873.39	\$71,665.26	\$7,385.50				
40	68.89	\$35,961.27	410.07	\$13,692.15	\$49,653.42	19.53	\$4,827.41	\$75,248.52	\$7,315.83				
Totals			7,388 acre-feet				X \$233,692.17		Y \$565,912.48				

Appendix H. Table 3. Phase 2 - Detailed Benefit / Cost Ratio Analysis

Projects: Peck Lane, Pentz Road, & Waggoner Road

Year	M	Leak avoided per year N	Cost of Leak Repair Avoided O	Water Saved per Year (acre-feet) P	Cost of Water Saved Q	Total Operating Cost Savings R	Current Value of Operating Cost Savings S	Incremental Water Savings, (acre-feet) T	Capital Cost Savings U	Current Value of Capital Savings V
		$=G/14x(1+C)^M$	$=D \times N$	$=1000xHx(1+C)^M$	$=P \times E$	$=O + Q$	$=R / ((1+A)^M)$	$=P_M - P_{M-1}$	$=T \times F$	$=U / (1+A)^M$
0	0	0.00	\$0.00	0.00	\$0.00	\$0.00	\$0.00	0.00	\$0.00	\$0.00
1	7.20	\$3,758.40	\$0.00	42.86	\$1,431.00	\$5,189.40	\$4,895.66	42.86	\$165,152.54	\$155,804.28
2	7.56	\$3,946.32	\$0.00	45.00	\$1,502.55	\$5,448.87	\$4,849.47	2.14	\$8,257.63	\$7,349.26
3	7.94	\$4,143.64	\$0.00	47.25	\$1,577.68	\$5,721.31	\$4,803.73	2.25	\$8,670.51	\$7,279.93
4	8.33	\$4,350.82	\$0.00	49.61	\$1,656.56	\$6,007.38	\$4,758.41	2.36	\$9,104.03	\$7,211.25
5	8.75	\$4,568.36	\$0.00	52.09	\$1,739.39	\$6,307.75	\$4,713.52	2.48	\$9,559.24	\$7,143.22
6	9.19	\$4,796.78	\$0.00	54.70	\$1,826.36	\$6,623.14	\$4,669.05	2.60	\$10,037.20	\$7,075.83
7	9.65	\$5,036.62	\$0.00	57.43	\$1,917.68	\$6,954.29	\$4,625.00	2.73	\$10,539.06	\$7,009.07
8	10.13	\$5,288.45	\$0.00	60.30	\$2,013.56	\$7,302.01	\$4,581.37	2.87	\$11,066.01	\$6,942.95
9	10.64	\$5,552.87	\$0.00	63.32	\$2,114.24	\$7,667.11	\$4,538.15	3.02	\$11,619.31	\$6,877.45
10	11.17	\$5,830.51	\$0.00	66.49	\$2,219.95	\$8,050.46	\$4,495.34	3.17	\$12,200.28	\$6,812.57
11	11.73	\$6,122.04	\$0.00	69.81	\$2,330.95	\$8,452.99	\$4,452.93	3.32	\$12,810.29	\$6,748.30
12	12.31	\$6,428.14	\$0.00	73.30	\$2,447.50	\$8,875.64	\$4,410.92	3.49	\$13,450.80	\$6,684.64
13	12.93	\$6,749.55	\$0.00	76.97	\$2,569.87	\$9,319.42	\$4,369.31	3.67	\$14,123.34	\$6,621.58
14	13.58	\$7,087.02	\$0.00	80.81	\$2,698.36	\$9,785.39	\$4,328.09	3.85	\$14,829.51	\$6,559.11
15	14.26	\$7,441.37	\$0.00	84.85	\$2,833.28	\$10,274.66	\$4,287.26	4.04	\$15,570.99	\$6,497.23
16	14.97	\$7,813.44	\$0.00	89.10	\$2,974.95	\$10,788.39	\$4,246.81	4.24	\$16,349.54	\$6,435.93
17	15.72	\$8,204.12	\$0.00	93.55	\$3,123.69	\$11,327.81	\$4,206.75	4.45	\$17,167.01	\$6,375.22
18	16.50	\$8,614.32	\$0.00	98.23	\$3,279.88	\$11,894.20	\$4,167.06	4.68	\$18,025.36	\$6,315.07
19	17.33	\$9,045.04	\$0.00	103.14	\$3,443.87	\$12,488.91	\$4,127.75	4.91	\$18,926.63	\$6,255.50
20	18.19	\$9,497.29	\$0.00	108.30	\$3,616.07	\$13,113.36	\$4,088.81	5.16	\$19,872.96	\$6,196.48
21	19.10	\$9,972.15	\$0.00	113.71	\$3,796.87	\$13,769.02	\$4,050.23	5.41	\$20,866.61	\$6,138.03
22	20.06	\$10,470.76	\$0.00	119.40	\$3,986.71	\$14,457.47	\$4,012.02	5.69	\$21,909.94	\$6,080.12
23	21.06	\$10,994.30	\$0.00	125.37	\$4,186.05	\$15,180.35	\$3,974.17	5.97	\$23,005.44	\$6,022.76
24	22.11	\$11,544.01	\$0.00	131.64	\$4,395.35	\$15,939.37	\$3,936.68	6.27	\$24,155.71	\$5,965.94
25	23.22	\$12,121.22	\$0.00	138.22	\$4,615.12	\$16,736.33	\$3,899.54	6.58	\$25,363.50	\$5,909.66
26	24.38	\$12,727.28	\$0.00	145.13	\$4,845.87	\$17,573.15	\$3,862.75	6.91	\$26,631.67	\$5,853.91
27	25.60	\$13,363.64	\$0.00	152.39	\$5,088.17	\$18,451.81	\$3,826.31	7.26	\$27,963.26	\$5,798.68
28	26.88	\$14,031.82	\$0.00	160.01	\$5,342.58	\$19,374.40	\$3,790.22	7.62	\$29,361.42	\$5,743.98
29	28.22	\$14,733.41	\$0.00	168.01	\$5,609.70	\$20,343.12	\$3,754.46	8.00	\$30,829.49	\$5,689.79
30	29.64	\$15,470.08	\$0.00	176.41	\$5,890.19	\$21,360.27	\$3,719.04	8.40	\$32,370.96	\$5,636.11
31	31.12	\$16,243.59	\$0.00	185.23	\$6,184.70	\$22,428.29	\$3,683.95	8.82	\$33,989.51	\$5,582.94
32	32.67	\$17,055.77	\$0.00	194.49	\$6,493.93	\$23,549.70	\$3,649.20	9.26	\$35,688.99	\$5,530.27
33	34.31	\$17,908.56	\$0.00	204.21	\$6,818.63	\$24,727.19	\$3,614.77	9.72	\$37,473.44	\$5,478.10
34	36.02	\$18,803.98	\$0.00	214.42	\$7,159.56	\$25,963.55	\$3,580.67	10.21	\$39,347.11	\$5,426.42
35	37.82	\$19,744.18	\$0.00	225.14	\$7,517.54	\$27,261.72	\$3,546.89	10.72	\$41,314.47	\$5,375.23
36	39.72	\$20,731.39	\$0.00	236.40	\$7,893.42	\$28,624.81	\$3,513.43	11.26	\$43,380.19	\$5,324.52
37	41.70	\$21,767.96	\$0.00	248.22	\$8,288.09	\$30,056.05	\$3,480.29	11.82	\$45,549.20	\$5,274.29
38	43.79	\$22,856.36	\$0.00	260.63	\$8,702.49	\$31,558.85	\$3,447.45	12.41	\$47,826.66	\$5,224.53
39	45.98	\$23,999.18	\$0.00	273.66	\$9,137.62	\$33,136.80	\$3,414.93	13.03	\$50,217.99	\$5,175.24
40	48.27	\$25,199.14	\$0.00	287.35	\$9,594.50	\$34,793.64	\$3,382.71	13.68	\$52,728.89	\$5,126.42
Totals				5,177 acre-feet			\$163,755.10			\$396,551.81

182	7.74% = G / 2352	
8,600		
\$658,143.86		
	1,062,248.51 = X + Y	
	1,614 = K / J	
Net Value of		
Capital Savings		
V		
J / (1+Y) ^M		
\$0.00		
\$295,378.96		
\$13,932.97		
\$13,801.53		
\$13,671.32		
\$13,542.35		
\$13,414.59		
\$13,288.04		
\$13,162.68		
\$13,038.50		
\$12,915.50		
\$12,793.65		
\$12,672.96		
\$12,553.40		
\$12,434.97		
\$12,317.66		
\$12,201.46		
\$12,086.35		
\$11,972.33		
\$11,859.38		
\$11,747.50		
\$11,636.68		
\$11,526.90		
\$11,418.15		
\$11,310.43		
\$11,203.73		
\$11,098.04		
\$10,993.34		
\$10,889.63		
\$10,786.89		
\$10,685.13		
\$10,584.33		
\$10,484.48		
\$10,385.57		
\$10,287.59		
\$10,190.54		
\$10,094.40		
\$9,999.17		
\$9,904.84		
\$9,811.39		
\$9,718.83		

Table 1: Project Performance
Phase 1
Water Conservation Projects

Total Water Savings (AF)(1)	7,388
(1) During Project Life, from Table 6	

Table 1: Project Performance
Phase 2
Water Conservation Projects

Total Water Savings (AF)(1)	5,177
(1) During Project Life, from Table 6	

Table 1: Project Performance
Phase 3
Water Conservation Projects

Total Water Savings (AF)(1)	9,815
(1) During Project Life, from Table 6	

Table 2: Capital Costs
Phase 1
Water Conservation Projects

	Capital Cost Category	Cost	Contingency		Subtotal
	(a)	(b)	Percent	\$	(e)
			(c)	(d)	(b+d)
				(bxc)	
(a)	Land Purchase/Easement	21,120	0	0	21,120
(b)	Planning/design/Engineering	20,615	0	0	20,615
(c)	Materials/Installation	279,355	0.1	27,935	307,290
(d)	Structures	0	0	0	0
(e)	Equipment Purchases/rentals	102,951	0.02	2,059	105,010
(f)	Environmental Mitigation/Enhancement	0	0	0	0
(g)	Construction Administration/Overhead	8,246	0	0	8,246
(h)	Project Legal/License Fees	0	0	0	0
(i)	Other	0	0	0	0
(j)	Total (1) (a + ... + i)				462,281

(1) Costs must match Project Budget prepared in Section A-3.

Table 2: Capital Costs
Phase 2
Water Conservation Projects

	Capital Cost Category	Cost	Contingency		Subtotal
	(a)	(b)	Percent	\$	(e)
			(c)	(d)	(b+d)
				(bxc)	
(a)	Land Purchase/Easement	17,820	0	0	17,820
(b)	Planning/design/Engineering	15,514	0	0	15,514
(c)	Materials/Installation	208,462	0.1	20,846	229,308
(d)	Structures	0	0	0	0
(e)	Equipment Purchases/rentals	79,379	0.02	1,588	80,966
(f)	Environmental Mitigation/Enhancement	0	0	0	0
(g)	Construction Administration/Overhead	6,205	0	0	6,205
(h)	Project Legal/License Fees	0	0	0	0
(i)	Other	0	0	0	0
(j)	Total (1) (a + ... + i)				349,814

(1) Costs must match Project Budget prepared in Section A-3.

Table 2: Capital Costs
Phase 3
Water Conservation Projects

	Capital Cost Category	Cost	Contingency		Subtotal
	(a)	(b)	Percent	\$	(e)
			(c)	(d)	(b+d)
				(bxc)	
(a)	Land Purchase/Easement	29,040	0	0	29,040
(b)	Planning/design/Engineering	29,397	0	0	29,397
(c)	Materials/Installation	392,326	0.1	39,233	431,559
(d)	Structures	0	0	0	0
(e)	Equipment Purchases/rentals	153,323	0.02	3,066	156,389
(f)	Environmental Mitigation/Enhancement	0	0	0	0
(g)	Construction Administration/Overhead	11,759	0	0	11,759
(h)	Project Legal/License Fees	0	0	0	0
(i)	Other	0	0	0	0
(j)	Total (1) (a + ... + i)				658,144

(1) Costs must match Project Budget prepared in Section A-3.

Table 6: Project Benefits (Long Form)
Phase 1

Water Conservation Projects

Year (a)	Water Conservation Savings (b)	Discount Factor (6.0%) (c)	Water Supply Benefits(1) (d)	Total Discounted Benefits (e) (cxd)
0	0	1.000	0	0
1	61	0.943	235,686	222,252
2	64	0.890	11,784	10,488
3	67	0.840	12,374	10,394
4	71	0.792	12,992	10,290
5	74	0.747	13,642	10,190
6	78	0.705	14,324	10,098
7	82	0.665	15,040	10,002
8	86	0.627	15,792	9,902
9	90	0.592	16,582	9,816
10	95	0.558	17,411	9,715
11	100	0.527	18,281	9,634
12	105	0.497	19,195	9,540
13	110	0.469	20,155	9,453
14	115	0.442	21,163	9,354
15	121	0.417	22,221	9,266
16	127	0.394	23,332	9,193
17	134	0.371	24,499	9,089
18	140	0.350	25,724	9,003
19	147	0.331	27,010	8,940
20	155	0.312	28,360	8,848
21	162	0.294	29,778	8,755
22	170	0.278	31,267	8,692
23	179	0.262	32,831	8,602
24	188	0.247	34,472	8,515
25	197	0.233	36,196	8,434
26	207	0.220	38,006	8,361
27	217	0.207	39,906	8,261
28	228	0.196	41,901	8,213
29	240	0.185	43,996	8,139
30	252	0.174	46,196	8,038
31	264	0.164	48,506	7,955
32	278	0.155	50,931	7,894
33	291	0.146	53,478	7,808
34	306	0.138	56,152	7,749
35	321	0.130	58,959	7,665
36	337	0.123	61,907	7,615
37	354	0.116	65,003	7,540
38	372	0.109	68,253	7,440
39	391	0.103	71,665	7,382
40	410	0.097	75,249	7,299
TOTAL	7,388		1,580,219	565,824

(1) Total avoided costs, alternative costs or revenue benefits.

Table 6a: Project Benefits
Phase 1
(Including Benefit from Avoided O&M Costs)
Water Conservation Projects

Year (a)	Water Conservation Savings (b)	Discount Factor (6.0%) (c)	Water Supply Benefits(1) (d)	Avoided O&M Costs (e)	Total Benefit (f) (d+e)	Total Discounted Benefits (g) (cxf)
0	0	1.000	0	0	0	0
1	61	0.943	235,686	7,406	243,092	229,236
2	64	0.890	11,784	7,776	19,560	17,409
3	67	0.840	12,374	8,165	20,538	17,252
4	71	0.792	12,992	8,573	21,565	17,080
5	74	0.747	13,642	9,002	22,644	16,915
6	78	0.705	14,324	9,452	23,776	16,762
7	82	0.665	15,040	9,924	24,964	16,601
8	86	0.627	15,792	10,421	26,213	16,435
9	90	0.592	16,582	10,942	27,523	16,294
10	95	0.558	17,411	11,489	28,899	16,126
11	100	0.527	18,281	12,063	30,344	15,992
12	105	0.497	19,195	12,666	31,862	15,835
13	110	0.469	20,155	13,300	33,455	15,690
14	115	0.442	21,163	13,965	35,128	15,526
15	121	0.417	22,221	14,663	36,884	15,381
16	127	0.394	23,332	15,396	38,728	15,259
17	134	0.371	24,499	16,166	40,664	15,087
18	140	0.350	25,724	16,974	42,698	14,944
19	147	0.331	27,010	17,823	44,833	14,840
20	155	0.312	28,360	18,714	47,074	14,687
21	162	0.294	29,778	19,650	49,428	14,532
22	170	0.278	31,267	20,632	51,899	14,428
23	179	0.262	32,831	21,664	54,494	14,278
24	188	0.247	34,472	22,747	57,219	14,133
25	197	0.233	36,196	23,884	60,080	13,999
26	207	0.220	38,006	25,078	63,084	13,878
27	217	0.207	39,906	26,332	66,238	13,711
28	228	0.196	41,901	27,649	69,550	13,632
29	240	0.185	43,996	29,031	73,028	13,510
30	252	0.174	46,196	30,483	76,679	13,342
31	264	0.164	48,506	32,007	80,513	13,204
32	278	0.155	50,931	33,607	84,539	13,103
33	291	0.146	53,478	35,288	88,765	12,960
34	306	0.138	56,152	37,052	93,204	12,862
35	321	0.130	58,959	38,905	97,864	12,722
36	337	0.123	61,907	40,850	102,757	12,639
37	354	0.116	65,003	42,892	107,895	12,516
38	372	0.109	68,253	45,037	113,290	12,349
39	391	0.103	71,665	47,289	118,954	12,252
40	410	0.097	75,249	49,653	124,902	12,115
TOTAL	7,388		1,580,219	894,608	2,474,827	799,516

(1) Total avoided costs, alternative costs or revenue benefits.

Table 6: Project Benefits (Long Form)
Phase 2

Water Conservation Projects

Year (a)	Water Conservation Savings (b)	Discount Factor (6.0%) (c)	Water Supply Benefits(1) (d)	Total Discounted Benefits (e) (cxd)
0	0	1.000	0	0
1	43	0.943	165,153	155,739
2	45	0.890	8,258	7,349
3	47	0.840	8,671	7,283
4	50	0.792	9,104	7,210
5	52	0.747	9,559	7,141
6	55	0.705	10,037	7,076
7	57	0.665	10,539	7,008
8	60	0.627	11,066	6,938
9	63	0.592	11,619	6,879
10	66	0.558	12,200	6,808
11	70	0.527	12,810	6,751
12	73	0.497	13,451	6,685
13	77	0.469	14,123	6,624
14	81	0.442	14,830	6,555
15	85	0.417	15,571	6,493
16	89	0.394	16,350	6,442
17	94	0.371	17,167	6,369
18	98	0.350	18,025	6,309
19	103	0.331	18,927	6,265
20	108	0.312	19,873	6,200
21	114	0.294	20,867	6,135
22	119	0.278	21,910	6,091
23	125	0.262	23,005	6,027
24	132	0.247	24,156	5,966
25	138	0.233	25,363	5,910
26	145	0.220	26,632	5,859
27	152	0.207	27,963	5,788
28	160	0.196	29,361	5,755
29	168	0.185	30,829	5,703
30	176	0.174	32,371	5,633
31	185	0.164	33,990	5,574
32	194	0.155	35,689	5,532
33	204	0.146	37,473	5,471
34	214	0.138	39,347	5,430
35	225	0.130	41,314	5,371
36	236	0.123	43,380	5,336
37	248	0.116	45,549	5,284
38	261	0.109	47,827	5,213
39	274	0.103	50,218	5,172
40	287	0.097	52,729	5,115
TOTAL	5,177		1,107,307	396,490

(1) Total avoided costs, alternative costs or revenue benefits.

Table 6a: Project Benefits
Phase 2
(Including Benefit from Avoided O&M Costs)
Water Conservation Projects

Year (a)	Water Conservation Savings (b)	Discount Factor (6.0%) (c)	Water Supply Benefits(1) (d)	Avoided O&M Costs (e)	Total Benefit (f) (d+e)	Total Discounted Benefits (g) (cxf)
0	0	1.000	0	0	0	0
1	43	0.943	165,153	5,189	170,342	160,632
2	45	0.890	8,258	5,449	13,706	12,199
3	47	0.840	8,671	5,721	14,392	12,089
4	50	0.792	9,104	6,007	15,111	11,968
5	52	0.747	9,559	6,308	15,867	11,853
6	55	0.705	10,037	6,623	16,660	11,746
7	57	0.665	10,539	6,954	17,493	11,633
8	60	0.627	11,066	7,302	18,368	11,517
9	63	0.592	11,619	7,667	19,286	11,418
10	66	0.558	12,200	8,050	20,251	11,300
11	70	0.527	12,810	8,453	21,263	11,206
12	73	0.497	13,451	8,876	22,326	11,096
13	77	0.469	14,123	9,319	23,443	10,995
14	81	0.442	14,830	9,785	24,615	10,880
15	85	0.417	15,571	10,275	25,846	10,778
16	89	0.394	16,350	10,788	27,138	10,692
17	94	0.371	17,167	11,328	28,495	10,572
18	98	0.350	18,025	11,894	29,920	10,472
19	103	0.331	18,927	12,489	31,416	10,399
20	108	0.312	19,873	13,113	32,986	10,292
21	114	0.294	20,867	13,769	34,636	10,183
22	119	0.278	21,910	14,457	36,367	10,110
23	125	0.262	23,005	15,180	38,186	10,005
24	132	0.247	24,156	15,939	40,095	9,903
25	138	0.233	25,363	16,736	42,100	9,809
26	145	0.220	26,632	17,573	44,205	9,725
27	152	0.207	27,963	18,452	46,415	9,608
28	160	0.196	29,361	19,374	48,736	9,552
29	168	0.185	30,829	20,343	51,173	9,467
30	176	0.174	32,371	21,360	53,731	9,349
31	185	0.164	33,990	22,428	56,418	9,253
32	194	0.155	35,689	23,550	59,239	9,182
33	204	0.146	37,473	24,727	62,201	9,081
34	214	0.138	39,347	25,964	65,311	9,013
35	225	0.130	41,314	27,262	68,576	8,915
36	236	0.123	43,380	28,625	72,005	8,857
37	248	0.116	45,549	30,056	75,605	8,770
38	261	0.109	47,827	31,559	79,386	8,653
39	274	0.103	50,218	33,137	83,355	8,586
40	287	0.097	52,729	34,794	87,523	8,490
TOTAL	5,177		1,107,307	626,878	1,734,185	560,245

(1) Total avoided costs, alternative costs or revenue benefits.

Table 6: Project Benefits (Long Form)
Phase 3

Water Conservation Projects

Year (a)	Water Conservation Savings (b)	Discount Factor (6.0%) (c)	Water Supply Benefits(1) (d)	Total Discounted Benefits (e) (cxd)
0	0	1.000	0	0
1	81	0.943	313,102	295,255
2	85	0.890	15,655	13,933
3	90	0.840	16,438	13,808
4	94	0.792	17,260	13,670
5	99	0.747	18,123	13,538
6	104	0.705	19,029	13,415
7	109	0.665	19,980	13,287
8	114	0.627	20,979	13,154
9	120	0.592	22,028	13,041
10	126	0.558	23,130	12,906
11	132	0.527	24,286	12,799
12	139	0.497	25,500	12,674
13	146	0.469	26,776	12,558
14	153	0.442	28,114	12,427
15	161	0.417	29,520	12,310
16	169	0.394	30,996	12,212
17	177	0.371	32,546	12,074
18	186	0.350	34,173	11,961
19	196	0.331	35,882	11,877
20	205	0.312	37,676	11,755
21	216	0.294	39,560	11,631
22	226	0.278	41,538	11,547
23	238	0.262	43,614	11,427
24	250	0.247	45,795	11,311
25	262	0.233	48,085	11,204
26	275	0.220	50,489	11,108
27	289	0.207	53,014	10,974
28	303	0.196	55,664	10,910
29	319	0.185	58,448	10,813
30	334	0.174	61,370	10,678
31	351	0.164	64,438	10,568
32	369	0.155	67,660	10,487
33	387	0.146	71,043	10,372
34	407	0.138	74,596	10,294
35	427	0.130	78,325	10,182
36	448	0.123	82,242	10,116
37	471	0.116	86,354	10,017
38	494	0.109	90,671	9,883
39	519	0.103	95,205	9,806
40	545	0.097	99,965	9,697
TOTAL	9,815		2,099,269	751,678

Table 6a: Project Benefits
Phase 3
(Including Benefit from Avoided O&M Costs)
Water Conservation Projects

Year (a)	Water Conservation Savings (b)	Discount Factor (6.0%) (c)	Water Supply Benefits(1) (d)	Avoided O&M Costs (e)	Total Benefit (f) (d+e)	Total Discounted Benefits (g) (cxf)
0	0	1.000	0	0	0	0
1	81	0.943	313,102	9,838	322,940	304,532
2	85	0.890	15,655	10,330	25,985	23,127
3	90	0.840	16,438	10,847	27,284	22,919
4	94	0.792	17,260	11,389	28,649	22,690
5	99	0.747	18,123	11,958	30,081	22,471
6	104	0.705	19,029	12,556	31,585	22,268
7	109	0.665	19,980	13,184	33,164	22,054
8	114	0.627	20,979	13,843	34,823	21,834
9	120	0.592	22,028	14,536	36,564	21,646
10	126	0.558	23,130	15,262	38,392	21,423
11	132	0.527	24,286	16,025	40,312	21,244
12	139	0.497	25,500	16,827	42,327	21,037
13	146	0.469	26,776	17,668	44,444	20,844
14	153	0.442	28,114	18,551	46,666	20,626
15	161	0.417	29,520	19,479	48,999	20,433
16	169	0.394	30,996	20,453	51,449	20,271
17	177	0.371	32,546	21,476	54,021	20,042
18	186	0.350	34,173	22,549	56,723	19,853
19	196	0.331	35,882	23,677	59,559	19,714
20	205	0.312	37,676	24,861	62,537	19,511
21	216	0.294	39,560	26,104	65,663	19,305
22	226	0.278	41,538	27,409	68,947	19,167
23	238	0.262	43,614	28,779	72,394	18,967
24	250	0.247	45,795	30,218	76,014	18,775
25	262	0.233	48,085	31,729	79,814	18,597
26	275	0.220	50,489	33,316	83,805	18,437
27	289	0.207	53,014	34,982	87,995	18,215
28	303	0.196	55,664	36,731	92,395	18,109
29	319	0.185	58,448	38,567	97,015	17,948
30	334	0.174	61,370	40,496	101,865	17,725
31	351	0.164	64,438	42,520	106,959	17,541
32	369	0.155	67,660	44,646	112,307	17,408
33	387	0.146	71,043	46,879	117,922	17,217
34	407	0.138	74,596	49,223	123,818	17,087
35	427	0.130	78,325	51,684	130,009	16,901
36	448	0.123	82,242	54,268	136,509	16,791
37	471	0.116	86,354	56,981	143,335	16,627
38	494	0.109	90,671	59,830	150,502	16,405
39	519	0.103	95,205	62,822	158,027	16,277
40	545	0.097	99,965	65,963	165,928	16,095
TOTAL	9,815		2,099,269	1,188,457	3,287,726	1,062,130

(1) Total avoided costs, alternative costs or revenue benefits.

**Table 7: Benefit/Cost Ratio
Phase 1**

**Water Conservation Projects
(Long Form)**

Project Benefits \$(1)	<u>565,824</u>
Project Costs \$(2)	<u>462,281</u>
Benefit/Cost Ratio	1.22

(1) From Table 6: Project Benefits (Long Form)

(2) From Table 2: Project Costs (Short Form)

**Table 7a: Benefit/Cost Ratio
Phase 1
(Including Benefit from Avoided O&M Costs)
Water Conservation Projects
(Long Form)**

Project Benefits \$(1)	<u>799,516</u>
Project Costs \$(2)	<u>462,281</u>
Benefit/Cost Ratio	1.73

(1) From Table 6a: Project Benefits (Long Form)

(2) From Table 2: Project Costs (Short Form)

**Table 7: Benefit/Cost Ratio
Phase 2**

**Water Conservation Projects
(Long Form)**

Project Benefits \$(1)	<u>396,490</u>
Project Costs \$(2)	<u>349,814</u>
Benefit/Cost Ratio	1.13

(1) From Table 6: Project Benefits (Long Form)

(2) From Table 2: Project Costs (Short Form)

**Table 7a: Benefit/Cost Ratio
Phase 2
(Including Benefit from Avoided O&M Costs)
Water Conservation Projects
(Long Form)**

Project Benefits \$(1)	<u>560,245</u>
Project Costs \$(2)	<u>349,814</u>
Benefit/Cost Ratio	1.60

(1) From Table 6a: Project Benefits (Long Form)

(2) From Table 2: Project Costs (Short Form)

**Table 7: Benefit/Cost Ratio
Phase 3**

**Water Conservation Projects
(Long Form)**

Project Benefits \$(1)	<u>751,678</u>
Project Costs \$(2)	<u>658,144</u>
Benefit/Cost Ratio	1.14

(1) From Table 6: Project Benefits (Long Form)

(2) From Table 2: Project Costs (Short Form)

**Table 7a: Benefit/Cost Ratio
Phase 3
(Including Benefit from Avoided O&M Costs)
Water Conservation Projects
(Long Form)**

Project Benefits \$(1)	<u>1,062,130</u>
Project Costs \$(2)	<u>658,144</u>
Benefit/Cost Ratio	1.61

(1) From Table 6a: Project Benefits (Long Form)

(2) From Table 2: Project Costs (Short Form)